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AGRICULTURE

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USSR REPORT
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USSR GOSAGROPROM OFFICIAL ADDRESSES FEED MACHINERY CONFERENCE

Moscow SELSKAYA ZHIZN in Russian 6 Feb 86 p 2

[Article by D.Prosekov, SELSKAYA ZHIZN correspondent, Kalinin Oblast: "Getting Ready for the Green Harvest!--from the All-Union Conference on Equipment Preparation for Feed Procurement"]

[Text] It is still winter in the farmyard, but the thoughts of farm workers are of spring. Feed procurement is not beyond the hills. Its results largely depend on the careful and timely preparation of equipment.

The practice of past years has indicated that in many oblasts, krays and republics serious shortcomings have been allowed in this business. In a number of localities a fifth and even a quarter of the feed harvesting machines are not being used. Thus, in Bransk and Orlov oblasts, in Altay Kray and in Uzbekistan last year one fourth of the feed harvesting combines were inoperative because of various malfunctions. As a result, grass-cutting periods were dragged out, and the quality of feed was low. Less was procured than planned.

These and other shortcomings were discussed at an All-Union conference-seminar held in Kalinin, in which workers of the engineering services of GOSAGROPROM of the union republics, representatives of the Ministry of Agricultural Machine Building USSR, Ministry of Livestock Machine Building USSR, and scientific-research institutions participated.

USSR GOSAGROPROM deputy chairman V.I. Chernoyvanov spoke, and then conference particpants discussed their experience with the efficient use of feed procurement equipment. However, their chief concern was the matter of neglect and failures.

It has become a habit to consider it almost a great achievement if there is a 90-93 percent readiness of feed harvesting machinery. Is this optimism justified? Feed harvesting equipment is used only during the working season, not the year round. This means that it can always be repaired earlier. Therefore the task is to guarantee 100 percent participation of machines and equipment in feed harvesting. It is necessary to be concerned about this even while there is time now, especially in places where the green harvest will begin earlier.

For example, in Central Asia green harvesting time is not so long away. However in Uzbekistan more than one third of the feed harvesting machinery is not operationally ready. What are they counting on? The speech of Yu. M. Mogilnichenko, deputy chief of the repair administration of Uzbek GOSAGROPROM did not respond to this question; it seemed that he was amazingly complacent. In Ukrainian farms more than half of the self-propelled feed harvesting combines are not operational. All is not well also with the quality of machinery repair.

It was noted at the conference that the performance of silage gathering and feed harvesting combines is still low in the country at large. In the past 5 years it has been at the same level, although the quantity of high-capacity self-propelled machinery is being constantly increased. What is the reason for this? In the first place, low reliability of machinery, especially of the KSK-100 combines manufactured by the "Gomselmash" production association. In the second place, the low level of their maintenance. Chief engineer of the association S. M. Perekrestov acknowledged the criticism of the machine builders as correct. He reported that measures are being taken for improving the technical level of feed harvesting equipment. In April the output of machinery with improved components will commence.

Participants of the conference devoted much attention to the organization of machinery repair and improving its quality. They listened with interest to the speech of the chief of administration of the Yelgavskiy special department of the Latvian GOSAGROPROM, Kh. A. Buls, who talked about the experience of the first association set up in the country for the repair of feed harvesting machinery.

There was a useful exchange of experience among conference participants. It is to be expected that all feed harvesting machinery can be prepared in good time and good quality for the upcoming feed harvesting season, and that the green harvest can be conducted without malfunctions and stoppages.

The following officials took part in the work of the conference-seminar: the deputy manager of the Department of Agriculture and the Food Industry of the CPSU Central Committee, A.D. Budyk; first secretary of the Kalinin Obkom, N.F. Tatarchuk; and responsible workers of the USSR Council of Ministers and GOSAGROPROM USSR. Participants of the conference became acquainted with the repair service operations of a number of farms and specialized enterprises of Kalinin and Moscow oblasts.

CSO: 1824/268-P

LIVESTOCK FEED PROCUREMENT

SOYBEAN CULTIVATION FOR FEED ENRICHMENT IN KAZAKHSTAN

Soybean Farmers Interviewed

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 18 Feb 86 p 2

[Editorial Report] KAZAKHSTANSKAYA PRAVDA on 18 February 1986 carries an article entitled "Soybean Feed Production in the Field" which emphasizes the importance of a reliable feed base to livestock sector development. The most difficult problem facing livestock farmers is the feed protein deficit. A special Protein Program has been worked out by the Kazakh AGROPROM to overcome this deficit. The decision was made to expand soybean cultivation, which now occupies some 13,000 hectares. At present the agrotechnology of soybean raising has been developed on several farms, and prospective varieties have emerged. Intensive technology applied to soybean cultivation on a scientific basis is bringing good results.

Correspondents from KAZAKHSTANSKAYA PRAVDA interviewed managers and officials of leading Kazakh farms concerning their experience in raising soybeans, and problems restricting the development of this valuable feed crop.

In an article entitled "First Successes" correspondent V. Ganzha interviews farm managers of several kolkhozes in a rayon of Taldy-Kurgan Oblast concerning their experience with soybean cultivation. High meat and milk production is attributed to the use of soybeans in livestock feed. The interviews noted the difficulties in finding feasible methods of cultivating this valuable crop. Mistakes were analyzed and progress through trial and error is described. Experience indicates that soybeans enrich the soil with nitrogen and that technical and feed crops raised in rotation with it give generous yields with a minimum expenditure of mineral fertilizer.

In an article entitled "Repaid a Hundredfold," correspondent O. Nikanov recounts his visit to a sovkhoz in Alma-Ata Oblast where the first soybean hectares were cultivated 10 years ago. Experimental work with the crop during this time resulted in greatly expanded cultivation and many changes. After 1983 cost accounting brigades commenced operation, and the sovkhoz became profitable according to the chief farm economist. During 1985 the production of soybeans gave the sovkhoz about a fifth of its income. The soybean is a delicate crop, however, and requires special handling. All with whom Nikanov talked were convinced that the harvesting of soybeans can be considerably increased, greatly outstripping experimental indicators. Water and herbicides are needed to accomplish this. The comment is made that water for irrigation is insufficient.

Official on Soybean Technology

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 18 Feb 86 p 2

[Comment by Yu. Karyagin, manager, Selection and Agrotechnology Section of Pulse Grain Crops, Kazakh Scientific Research Institute of Farming, candidate of agricultural sciences]

[Text] Kazakhstan is the largest livestock base in USSR's eastern region. In the next 15 years to the year 2000 it is planned to increase sharply the production of meat, milk and other farm products in the republic. It is necessary first to strengthen the feed base. Although much feed is now procured, its quality remains low. Each year there is a shortfall of 500,000-600,000 tons of feed protein. This results in an overconsumption of feed, while livestock productivity increases slowly. The 16th Kazakh Communist Party Congress set the task of enriching animal rations with a sufficient amount of protein. For this purpose the Protein Program is to be implemented.

Of the pulse grain protein crops cultivated in the southern and southeastern areas of Kazakhstan, the soybean has come into prominence in recent years. Its grain comprises 40 percent protein, 20 percent oil, and up to 30 percent carbohydrate. The protein quality of this crop is the highest of all vegetable proteins.

In our republic, especially in the southeast, the soybean yield can be high and stable with irrigations. For example, in the Order of Lenin Alma-Atinskiy Sovkhoz they grew 20-30 quintals of soybeans each year from an area of 250 hectares, and in 1985 they grew 31.2 quintals. In the Kaskelenskiy experimental farm of the Kazakh Scientific Research Institute of Farming, each year about 22-25 quintals of soybeans are received per hectare from seedfarm plantings in a 300-hectare area, and in individual links and brigades, 30 and more quintals of beans.

In Taldy-Kurgan Oblast even as late as 1983 the harvest of soybean grain of the entire sowing area of 3,220 hectares amounted to only 5 quintals a hectare. However with the aid of scientists of the Kazakh Scientific Research Institute of Farming, intensive soybean technology has been developed with quick results. In 1984 the average soybean yield amounted to 13 quintals, and in 1985 to 13.4 quintals per hectare.

Nonetheless, this valuable crop intended for resolving the protein problem in the republic has still not received broad application. During the 11th Five-Year Plan the area sown to soybeans increased only by 2,900 hectares, amounting to 13,000 hectares in 1985. Moreover, in the past year the soybean sowing plan was fulfilled by only 56 percent, which is even less than was sown the year before. This is explained by the indifferent relationship to the costly crop on the part of farm managers. This particularly applies to Dzhambul and Chimkent Oblasts. In Dzhambul Oblast the soybean sowing plan was fulfilled only 4 percent, and in Chimkent Oblast, they did not sow it at all.

Soybeans can and must be cultivated in all natural zones of the republic. To do this, however, the best varieties must be determined, and zonal technology for raising this crop must be developed. For instance, a fast-maturing variety is required in the eastern and northern regions. However, only the Kazakh Scientific Research Institute of Farming is concerned with the selection and agrotechnology of soybeans in the republic-- and to an insufficient extent.

At present the mechanization of cultivation, harvesting and processing of soybeans is not up to the required level. Farms are insufficiently supplied with the necessary volume and assortment of herbicides, particularly bazagran, which is applied after the appearance of soybean shoots and weeds. In the major zones for cultivating this crop there are no oil processing factories, which greatly reduces the economic benefits of cultivating the crop. Resolution of these problems will facilitate the development of soybean production.

CSO: 1824/276

LIVESTOCK FEED PROCUREMENT

UDC 636.085.54

INCREASED USE OF QUALITY MIXED FEED URGED

Moscow ZHIVOTNOVODSTVO in Russian No 1, Jan 86 pp 32-35

/Article by L.S. Stefanyuk, Candidate of Economic Sciences: "Efficient Use of Concentrated Feeds"/

/Text/ An article by Academician K.M. Solntsev entitled "Improving the Quality of Mixed Feeds" /reference article appeared in USSR REPORT Agriculture UAG-86-001, p 1, 10 Jan 86/ was published in the sixth issue of the journal for 1985.

The Editorial Board has received and published in previous issues the replies and recommendations concerning the mentioned problem.

In this issue, the Editorial Board continues its publication of materials concerned with increasing the production of quality mixed feeds.

A more complete satisfaction of the population's increasing demand for quality food products is associated with the accelerated development of livestock husbandry as a most important branch of agricultural production.

One of the chief means for further intensifying livestock husbandry operations is that of creating a reliable feed base, one which will ensure balanced feeding for the livestock in terms of the principal nutritional and biologically active substances.

A great amount of work has been carried out in our country in recent years aimed at increasing the production of all types of feed. And it bears mentioning that the attention being given at the present time to improving the feed base is already producing positive results. Thus, during 1983, 18 million more tons of feed units were consumed in livestock husbandry than were consumed on the average during the years of the 10th Five-Year Plan. In 1984, notwithstanding certain difficulties, 7.8 million more tons of feed units for coarse and succulent feeds were procured than the average annual level for the 1981-1983 period.

The implementation of a complex of measures aimed at increasing the production of high quality hay, especially from leguminous grasses, mixed silage, root

crops and other feeds, is making it possible to replace a portion of the concentrated feed in the animal ration. Thus, over the past few years the expenditure of concentrates has been reduced by almost 4 million tons annually and taking into account the increase in the production of livestock husbandry products -- approximately 10 million tons.

In view of the great importance being attached to increasing the production of coarse and succulent feeds, we must devote proper attention to the correct use of concentrates. Science and practical experience have proven that they can be used most efficiently only in the form of mixed feed that is balanced in terms of its nutritional and biologically active substances.

Progress in livestock husbandry and its intensification, especially in such branches as poultry raising and swine breeding, have become possible as a result of the rapid development of the mixed feed industry. The production of mixed feeds makes it possible to balance the feed rations more completely and efficiently in terms of protein, vitamins, microelements and various stimulating and preventive-treatment components.

The biological and economic effectiveness of mixed feeds derives from the fact that during their preparation it becomes possible to economize in the use of up to 25-30 percent of the grain through the use of various components.

Mixed feed production has increased considerably over the past few years. The inter-farm, kolkhoz and sovkhoz mixed feed industry has undergone extensive development.

A great amount of attention is being given to developing the production of mixed feed in the Ukraine, the Baltic republics, in Krasnodar and Stavropol krays, in the Bashkir, Mari and Tatar autonomous republics and in Rostov, Kuybyshev, Penza and other oblasts of the RSFSR.

Measures are being implemented directed towards further developing the logistical base for inter-farm mixed feed plants and departments and converting them into highly mechanized modern enterprises capable of ensuring the production of mixed feeds and feed mixtures of the required quality. Modern completely mechanized lines for the acceptance, cleaning and drying of grain are being created at many enterprises and storehouse facilities of the elevator type are being built and supplied with highly productive transport and technological equipment. This is making it possible to accept and place in storage during the crop harvesting period the principal bulk of the forage grain needed for the production of mixed feeds.

Work is being carried out in a number of republics and oblasts aimed at expanding the assortment of these products and starter mixed feed is being produced for young stock. In the interest of raising the quality of the mixed feed, lines are being installed at specialized plants and shops for introducing premixes, fat, molasses and other additives. In the production of starter mixed feeds, extensive use is being made of the method of processing grain raw materials on press-extruders. This method makes it possible to decrease the consumption of deficit high protein components of animal origin. For example, at the Balakleya Mixed Feed Plant in Kharkov Oblast, extruded peas up to 50 percent in bulk is being used as a substitute for skim milk and for fish and

meat and bone meal in the mixed feed for suckling pigs. In the case of older pigs, the feed of animal origin is completely replaced by extruded peas. Many examples could be cited showing how a high animal productivity was realized from the feeding of mixed feeds which were produced at inter-farm, kolkhoz and sovkhoz mixed feed plants and shops. At the Put K Kommunizmu Kolkhoz in Grodnenskiy Rayon in Grodno Oblast, mixed feeds are being produced which make it possible to obtain an average daily increase in hog weight of 590 grams. The Rogachev Inter-Farm Mixed Feed Plant in Gomel Oblast supplies mixed feeds for a hog breeding complex for 12,000 head, where a daily weight gain of 540 grams is being obtained. Many such examples could be cited.

Many inter-farm, kolkhoz and sovkhoz mixed feed enterprises have mastered the production of feed mixtures having a high content (50-70 percent) of milled coarse feeds -- straw, corn cobs, sunflower heads and other waste materials of field crop husbandry. This is an effective method for reducing the proportion of forage grain in the rations for ruminant animals. With the exception of coarse feeds, the composition of the feed mixtures consists of 25-30 percent concentrates, grass meal, carbamide, molasses, feed phosphates and other additives.

The feeding of complete-ration granulated and briquetted feed mixtures makes it possible to obtain an average daily weight increase of 700-800 grams during the final fattening of cattle.

However, the level achieved in the production of mixed feeds is still not satisfying the livestock husbandry requirements either from a quantitative or qualitative standpoint. With absolute growth in the production volume for mixed feeds, their proportion with regard to the overall expenditure of concentrates is inadequate. On a number of farms, a considerable portion of these feeds is still being used in the form of simple grain feed mixtures. At a number of kolkhozes and sovkhozes in the Kazakh, Belorussian and Kirghiz union republics, in the Altay Kray and in Saratov, Volgograd, Omsk and other oblasts, proper attention is not being given to the task of increasing the production of mixed feeds.

In the Kazakh SSR, for example, only 8-10 percent of the forage grain allocated by the kolkhozes and sovkhozes from their own resources is being processed into mixed feed, in the Belorussian SSR -- 13, the Altay Kray -- 11, Novosibirsk Oblast -- 8 and Saratov and Volgograd oblasts -- 3 percent. A restraining factor with regard to increasing the production of mixed feeds is the lag that has developed in the construction of inter-farm, kolkhoz and sovkhoz mixed feed plants and shops and also the shortage in high protein components. In some oblasts, poor use is being made of the capabilities of the mixed feed plants.

The efficient use by the kolkhozes and sovkhozes of their own grain, allocated for forage purposes, is being restrained to a considerable degree by incomplete shipments of protein-vitamin additives to agriculture by mixed feed enterprises of industry. From year to year, the tasks concerned with carrying out deliveries of BVD /protein-vitamin additives/ to inter-farm, kolkhoz and sovkhoz mixed feed enterprises are not being fulfilled. In particular, the degree to which enterprises in the Russian Federation are being supplied with protein-vitamin additives is very unsatisfactory. Thus, during

the current five-year plan, the task for carrying out BVD deliveries was fulfilled by only one third.

The low quality of the protein-vitamin additives is lowering the effectiveness of the work concerned with processing grain into mixed feed. Almost the entire volume of BVD is being produced with a lowered content of protein components. The protein content in the additives amounts to 20 percent instead of 30 percent of the figure called for in the GOST /state standard/. A large portion of the BVD is not being enriched with biologically active substances.

Serious shortcomings exist in the work being carried out at the mixed feed enterprises. Thus, in 1984 enterprises in Ivanovo Oblast tolerated a reduction of 45 percent in the production of mixed feeds compared to 1980, Kalinin Oblast -- 28 percent, Smolensk -- 17 percent and in the Mari and Udmurt autonomous republics -- 18 percent.

In 1984, enterprises in Ivanovo Oblast fulfilled their mixed feed production plan by 69 percent, Arkhangel Oblast -- by 86 and in Kalinin Oblast -- by 89 percent.

The country's mixed feed industry is only slowly introducing progressive technological methods into operations -- hulling of laminate crops, thermal treatment of raw materials, extrusion, crushing and micronization -- all of which make it possible to raise considerably the digestibility of the feed nutrients by the animals. The All-Union Scientific-Research Institute of the Mixed Feed Industry is not adequately solving those questions concerned with scientific-technical progress in improving the production technology for mixed feeds or developing methods for using various feed additives in place of grain components.

Thus, over a period of a number of years, by no means has full use been made of such high quality additives as dry pulp residue, molasses, technical and feed fats and other materials, as allocated to state mixed feed enterprises for the production of mixed feeds. For example, in 1980 and 1981 use was made of only 9 and 21 percent of the molasses allocated for adding to mixed feed and for dry pulp residue the figures were 5 and 18 percent respectively. A similar phenomenon was observed in 1984. As a result, the funds for these additives have declined in recent years.

One reason for the low nutritional value of the mixed feeds and BVD lies in the fact that insufficient control is being exercised over the technological process employed for their production and over the quality of the raw materials and finished products at a number of mixed feed enterprises. In many instances, the nutritional value of the raw materials is being determined on the basis of tabular rather than actual data. Notwithstanding the fact that the protein raw materials, vitamins and other components are being allocated to large livestock husbandry complexes and poultry factories mainly for the production of mixed feeds, there have been many instances of low quality feed being delivered to them (having a low content of protein, calcium, phosphorus, vitamins, microelements and other biologically active substances).

Analysis has shown that large livestock complexes and poultry factories, owing to the low quality of the mixed feeds, consume 10-15 percent more than the

amounts called for in the technological norms. This forces the agricultural enterprises at the sites into carrying out additional processing of the mixed feeds and also into spending considerable additional resources. At the present time, a considerable portion of the mixed feeds being produced by state enterprises for poultry is undergoing additional processing prior to being fed to the animals.

Domestic and foreign experience have shown that in the interests of locating the mixed feed production operations as close as possible to the livestock farms and reducing inefficient transport expenses, it will be necessary to ensure preferential growth in mixed feed production at inter-farm, kolkhoz and sovkhoz enterprises and shops, with use being made of BVD.

In recent years, measures have been undertaken in agriculture aimed at expanding the sowing areas for pulse crops, sunflowers, soybeans and perennial leguminous grasses. Plants and shops are in operation for the production of meat and bone meal, the dessication of skim milk and they are in fact producing dry milk, nutrient yeasts, premixes and others. All of this is expanding the protein component resources.

However, the production of pulse crops, rape and other protein crops and also industrially produced feed protein should be further intensified. A PK-200 oil-extraction press-chamber developed by SibNIPTIZh scientists makes it possible, in the absence of special expenditures, to process rape seed for cake and oil (each ton of rape furnishes more than 600 kg of cake and more than 300 kg of oil). The press-chamber is installed on a KMZ-2M press-extruder and it is capable of processing 200 kg of rape per hour. This makes it possible to produce cake and oil for use in the preparation of ZTsM /whole milk substitute/ and mixed feeds.

Measures are being undertaken in a number of republics and oblasts aimed at increasing the production of meat-and-bone meal. Nevertheless, insufficient use is being made of the available raw materials. In 1984, they were used to only 10 percent in the RSFSR and the Armenian SSR and to 15 percent in the Belorussian and Georgain SSR's. Even worse use is being made of the raw materials of slaughtering points of Tsentrosoyuz / USSR Central Union of Consumers' Societies/ and also of the waste materials obtained from leather-raw material, glue and gelatin enterprises.

Each year the animals at kolkhozes and sovkhozes are fed large quantities of liquid skim milk, buttermilk and whey. During the summer, when there are large quantities of these feeds, they are consumed at sovkhozes in an irrational manner. In order to prevent this from happening, the dessication of skim milk, buttermilk and others must be expanded.

Considerable reserves are available for raising the production of fodder protein through wood hydrolysis.

International experience and practical work carried out at leading kolkhozes and sovkhozes in our country underscore the economic effectiveness and advisability of lowering the proportion of grain used in the production of mixed feeds and feed mixtures. However, this reserve for economizing in the use

of grain for forage is not being used adequately. It has been established that the replacement of grain in mixed feeds by cake, oil-seed meal, buttermilk, dry beet pulp residue, fruit and vegetable waste scraps, dehydrated malt-residue and brewing waste, feed meal obtained from potatoes and root crops, non-food fats and other additives and also the addition of vitamins, microelements, amino acids and other biologically active substances promote an increase in the quality of mixed feeds and a considerable reduction in grain expenditures for forage purposes.

Each year, a large quantity of beet pulp residue is set aside for use as livestock feed. Moreover, it is used in raw form and this is very inefficient. At the same time, dry pulp residue can be used to replace from 10 to 20 percent of the grain in mixed feeds. Maximum use must be made of beet molasses in order to satisfy the needs of livestock husbandry. This will make it possible to balance the animal rations in terms of carbohydrates and it will ensure more efficient use of the protein raw materials. One ton of molasses, when enrichment is carried out using appropriate additives, balances up to 9 tons of concentrates in terms of nutritional value. The introduction of carbohydrate feeds into the rations will make it possible to utilize carbamide and other synthetic nitrogen-containing substances more efficiently in livestock husbandry.

A need has developed for organizing the production of such feeds as dehydrated grain malt-residue, mash, meal and shavings from potatoes, beets and carrots, all of which can be used as substitutes for grain in mixed feeds and improve the quality of the feeds. According to data furnished by VIZh /All-Union Scientific Research Institute of Livestock Breeding/, these additives can be used in mixed feeds for hogs, with no reduction in the productivity of the animals, for replacing 15 percent of the grain during the first fattening period and 20-35 percent during the second period.

A great amount of work is being carried out in this regard on farms in Belgorod Oblast. The oblast party organization at the present time is carrying out a considerable amount of work aimed at attracting additional resources for supplementing the forage supplies and for achieving economies in the use of grain for feeding to livestock. Active work is being carried out on the farms directed towards increasing the production of coarse and succulent feeds, especially hay, silage, haylage and for gathering up all post harvest residues for feeding to the livestock. For the purpose of ensuring thrifty expenditures of concentrates, special attention is being given to the laying in of mixed silage and to the conservation of corn cobs.

Grass meal, which can be used as a replacement for grain, serves as a fine source for adding carotene and protein to mixed feeds. Recently, the scientists in a number of republics conducted experiments on organizing the production of grass meal, with preliminary squeezing of juice from the fodder, and positive results were obtained. In the process, the expenses for petroleum products for drying the fodder, per ton of finished product, are lowered by almost twofold, with the quality of the grass meal being raised simultaneously.

A reduction in the proportion of grain in the mixed feeds is a matter of state importance. It bears mentioning that our science has still not achieved

perfection in this regard. Several recipes characterized by a reduced grain content in the mixed feeds have been developed in recent years. However, they are not being introduced into production operations. Nor is a study being carried out on resources or on the situation with regard to the use of feed industrial waste scraps, by means of which the grain level in concentrates could be lowered. Moreover, recommendations on the most advisable methods for using them are not being developed. Thus, such valuable feed additives as pulp residue, malt residue, mash and many others are not being used efficiently in livestock husbandry. The scientists must intensify their scientific studies aimed at finding new feed additives for replacing the grain in mixed feeds.

In addition to solving the problem of increasing the production of feed additives and lowering the proportion of grain in mixed feeds, an important role will be played by the technical level of mixed feed production.

It bears mentioning that a large number of mixed feed enterprises, especially kolkhoz and sovkhoz shops and installations, are not meeting the modern requirements that have been imposed with regard to mixed feed production, neither in terms of the selection of technological equipment nor in terms of the norms for capital investments.

Analysis reveals that approximately 30 percent of the OKTs-15 and OKTs-30 units at kolkhozes and sovkhozes in the Russian Federation were installed in unsuitable storage facilities. The all-round mechanization of technological processes is not being carried out in such shops and the facilities needed for storing the raw materials and finished products are lacking. In accordance with their technical equipping, they are capable of producing only the simplest of feed mixtures.

A considerable portion of the inter-farm kolkhoz and sovkhoz mixed feed shops and plants in operation throughout the country require the replacement of obsolete equipment and also modernization. In addition, a need exists for developing the storehouse and drying economy. During the 12th Five-Year Plan, production capabilities must be increased by accelerating scientific-technical progress in the production of mixed feeds, in modernization and in the technical re-equipping of existing enterprises.

In this regard, the Ministry of Machine Building for Livestock Husbandry and Feed Production has been tasked with organizing the production and delivery to agriculture of OTsK-4 and OTsK-8 automatic mixed feed preparation shops. Beyond any doubt, this equipment is considerably better than that in use at the present time, despite the fact that it does not fully meet the modern requirements. Minzhivmash /Ministry of Machine Building for Livestock Husbandry and Feed Production/ must introduce further improvements in this equipment.

Improvements must also be carried out in the near future in the quality of the installation, electrical installation and start-up and adjustment work being carried out at inter-farm, kolkhoz and sovkhoz enterprises for the production of mixed feeds and also in the technical servicing and repair of equipment for the mentioned installations.

The shortage in irreplaceable amino acids, mainly lysine and methionine, is being felt in particular in connection with the protein deficit in the rations. The country's principal supplier of synthetic lysine is the biological industry. However, this production is increasing only slowly. The level of active substance in the feed concentrate of lysine being delivered to agriculture is extremely low. More than 20 percent of the overall volume of lysine is being produced in liquid form and this tends to raise the moisture content of the mixed feed and to raise the transport expenses considerably.

The principal raw material for the production of lysine continues to be beet molasses, a valuable feed product that is used in livestock husbandry without preparation. Thus it will be necessary to find a new raw material source for the production of irreplaceable amino acids.

A technology for creating feed forms of vitamins was developed during the 11th Five-Year Plan and yet the appropriate enterprises are only slowly proceeding with the production of these forms.

Solutions for the problems touched upon in this article will promote a more rapid increase in the production of quality mixed feeds and this will make it possible to ensure the use of feeds, to raise the productivity of the animals and to lower the production costs of the farms.

LIVESTOCK

ESTONIAN AGRICULTURAL TASKS FOR 1986 DISCUSSED

Tallinn SOVETSKAYA ESTONIYA in Russian 8 Jan 86 p 1

/Article: "Agroprom During 1986"/

/Excerpts/ Workers attached to the republic's agroindustrial complex have commenced the new year with a high degree of work enthusiasm. They are striving not only to consolidate but also to develop further the successes achieved last year, when livestock and poultry procurements increased, the productivity of livestock husbandry was raised and the farmers of many kolkhozes and sovkhozes achieved fine yields.

This is borne out by the socialist obligations for the first year of the 12th Five-Year Plan, in which kolkhoz members, sovkhoz workers and workers attached to all branches of the APK /agroindustrial complex/ have set high goals for themselves. Thus the livestock breeders at the Edazi Kolkhoz in Pyarnuskiy Rayon have resolved to obtain an average of 6,150 kilograms of milk per cow, to achieve average daily increases in weight in their cattle of not less than 700 grams and in their hogs -- 500 grams and to sell cattle weighing 505 kilograms and hogs -- 107 kilograms. The farmers intend to obtain 35 quintals of grain and 200 quintals of potatoes per hectare and to produce 3,800 feed units on each hectare of sowing area.

The republic's Food Program was used as the basis for determining the rates of development during the new year for the branches of the agroindustrial complex and its most important element -- agriculture. Taking into account the local requirements and also the tasks for deliveries into the all-union food fund, during 1986 it will be necessary to procure livestock and poultry (in live weight) -- 290 and milk -- 1,230,000 tons, eggs -- 375 million, grain -- 170, potatoes -- 230, vegetables -- 67, fruit and berries -- 17 and flax -- 2 thousand tons. With regard to carrying out the established tasks, considerable importance is being attached at the present time to making fine preparations for spring and to carrying out the livestock wintering operations in a thrifty and highly organized manner.

During the new year, the principal task with regard to agricultural development will be that of increasing the production of livestock husbandry products, especially meat. This must be achieved through more complete support for the herd in the form of internally produced feed and based upon raised crop yields and further intensification of production.

Based upon the tasks for selling agricultural products to the state, a need exists for increasing the production of meat in dressed weight to 221,000 tons, or by 3.2 percent. Milk production must be increased to 1,265,000 tons and the productivity of cows must be raised to 4,070 kilograms annually, or by 0.7 percent.

Since the volume of mixed feed allocated from state resources is being held at the level for last year, internally produced feed must cover 78 percent of the overall feed requirements. This requires increases in the gross production of grain and potatoes of up to 1.3 and 1.16 million tons respectively and in the procurements of grass feeds -- up to 700,000-800,000 tons of feed units.

The experience of past years in the use of progressive technologies and the level achieved in feed production testify to the fact that these tense tasks can realistically be fulfilled.

Gosagroprom for the ESSR and the rayon executive committees must undertake specific measures aimed at ensuring fulfillment on the farms of the state plan for purchases of agricultural products and it must stimulate in every possible way the production of livestock husbandry products on the private plots of the population and on the subsidiary farms of enterprises. The administration of the Union of Consumer's Societies must organize on an extensive scale purchases of surplus agricultural products from the population and the trade in these products, with appropriate tasks being assigned to each rayon.

The state provides the farms with effective assistance in the interest of increasing agricultural production. The plan for 1986 calls for the allocation of the capital investments and logistical resources required for this purpose and also for improvements in the housing and domestic conditions in the rural areas. Approximately 324 million rubles worth of capital investments are being made available for the construction of production and also socio-cultural installations in the rural areas, with the kolkhozes being assigned a limit this year for construction-installation work, covered by 78 million rubles worth of materials, or 7 million rubles more than last year.

The food and meat and dairy branches will undergo further development. An increase of 2 percent is called for here in output, including 3.1 percent in the meat and dairy industry. The production of packaged meats, non-alcoholic beverages, cheese and confectionery products will be expanded considerably and the assortment of whole milk products will be expanded.

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FARM PRODUCTIVITY OVERVIEW FOR ESTONIAN SSR

Tallinn SOVETSKAYA ESTONIYA in Russian 22 Jan 86 p 1

/Article: "Summary -- Foundation for the Future"/

/Excerpts/ Over the past 5 years, further progress has been achieved in agriculture in our republic. Gross output production increased by 4.1 percent and labor productivity by 8.2 percent. Profound changes took place in branch administration and RAPO's /rayon agroindustrial associations/ and the ESSR Gosagroprom were created.

The republic successfully coped with its five year tasks for procuring grain, vegetables and eggs. But the plan for selling milk to the state was fulfilled by only 97.1 percent and the plan for livestock and poultry sales by 93.5 percent.. And here I would like to cite specific examples. In Raplaskiy, Tartuskiy and Vilyandiskiy rayons, milk procurements even decreased compared to the 10th Five-Year Plan by 2.1, 0.3 and 0.3 percent respectively. In 1977, the workers in Vilyandiskiy Rayon obtained an average of 4,019 kilograms of milk per cow, a figure which they are unable to achieve today. At Khiyumaa, the milk yields increased by only 8 kilograms and in 1985 they amounted to 3,460 kilograms (the average republic indicator, excluding the private sector, was 3,966 kilograms).

On the whole, the average milk yields in the republic during the past five-year plan were raised by 387 kilograms. Livestock and poultry sales to the state increased by 6.1 percent and yet they decreased in Raplaskiy, Valgaskiy and Vyruskiy rayons. Thus each farm is obligated at the present time to outline specific measures aimed at eliminating the shortcomings existing in the branch.

It bears mentioning that throughout all of this time our republic received considerable assistance from union organs and from many fraternal republics. This included additional fuel, equipment and forage. At the end of last year and the beginning of this current year, we were once again allocated additional forage in an amount sufficient for confidently commencing the new five-year plan. Gratitude must also be extended to those thousands of city-dwellers, pupils and students who provided effective assistance in carrying out the field work and who thus shared with the rural workers the difficulties involved in harvesting the crops.

Meat Purchases and Average Daily Weight Increases in Livestock During Fattening (January - December 1985)

Районы (1)	Закуплено скота и птицы во всех категориях хозяйств — в % к (2)		Средний вес закупленного скота — кг (5)		Среднесуточный привес скота на откорме в колхозах и совхозах — граммов (8)	
	плану (3)	соответствующему периоду 1984 г. (4)	крупного рогатого скота (6)	свиней (7)	крупного рогатого скота (6)	свиней (7)
1. Хийумааский (9)	102	103	464	105	608	492
2. Тартуский (10)	101	107	441	113	619	466
3. Раплаский (11)	101	109	453	106	656	475
4. Хаапсалуский (12)	101	107	454	107	667	464
5. Кингисеппский (13)	101	102	448	102	676	475
6. Йыгеваский (14)	101	103	444	109	616	461
7. Пайдеский (15)	100,9	102	458	101	676	492
8. Валгаский (16)	100,9	99	439	112	643	468
9. Харьюский (17)	100,8	102	450	104	636	520
10. Кохтла-Ярвеский (18)	100,6	102	449	113	626	493
11. Пылваский (19)	100,6	103	433	111	661	466
12. Пярнуский (20)	100,5	103	440	101	598	509
13. Вильяндиский (21)	100,5	107	443	111	621	516
14. Раквереский (22)	100,4	105	468	108	670	449
15. Выруский (23)	100,4	103	440	122	620	469

ЗАКУПКИ МОЛОКА И ПРОДУКТИВНОСТЬ КОРОВ
за январь—декабрь 1985 г.

Key:

1. Rayons
2. Livestock and poultry purchased at all categories of farms, in % of
3. Plan
4. Corresponding period for 1984
5. Average weight of livestock purchased, in kg
6. Cattle
7. Hogs
8. Average daily weight increase in livestock during fattening at kolkhozes and sovkhozes, in grams
9. Khiyumaaskiy
10. Tartuskiy
11. Raplaskiy
12. Khaapsaluskiy
13. Kingiseppskiy
14. Yygevaskiy
15. Paydeskiy
16. Valgaskiy
17. Kharyuskiy
18. Kokhtla-Yarveskiy
19. Pylvaskiy
20. Pyarnuskiy
21. Vilyandiskiy
22. Rakvereskiy
23. Vyruskiy

Following the May 1982 Plenum of the CPSU Central Committee, during which the Food Program was adopted, the agricultural workers coped for the most part with the plans for the past few years and achieved the level called for in the program for a majority of the indicators.

The final year of the five-year plan was a successful one particularly for the livestock breeders. The state tasks for livestock, poultry, milk and egg sales were fulfilled, with the livestock and milk sales being 4 and 1 percent respectively greater than the figures for 1984. Egg sales decreased by 0.7 percent and yet a reduction was called for in egg production based upon the trade requirements. All of the rayons without exception and a majority of the farms coped with the state tasks for the sale of livestock husbandry products.

Milk Purchases and Cow Productivity
(January - December 1985)

Районы (1)	Закуплено молока во всех категориях хозяйств — в % к (2) плану (3)	соответствующему периоду 1984 г. (4)	Средний удой молока от одной коровы в колхозах и совхозах — кг (5)	± кг к соответствующему периоду 1984 г. (6)
1. Харьюский (7)	108	105	4247	+268
2. Кингисеппский (8)	105	102	3612	+111
3. Хаапсалуский (9)	104	100,6	3685	+ 60
4. Валгаский (10)	103	100,1	3555	+ 98
5. Пайдеский (11)	102	101	4260	+115
6. Пылваский (12)	102	102	3827	+104
7. Кохтла Ярвеский (13)	102	102	3807	+ 99
8. Раквереский (14)	102	100,5	4302	+ 81
9. Тартуский (15)	102	102	3866	+137
10. Пярнуский (16)	102	99,6	4051	+ 38
11. Раплаский (17)	101	102	3940	+103
12. Йыгеваский (18)	100,9	100,3	3832	+ 38
13. Выруский (19)	100,9	100	3804	+ 75
14. Хийумааский (20)	100,3	105	3460	+189
15. Вильяндиский (21)	100,1	100	4002	+144

Key:

1. Rayons
2. Milk purchased at all categories of farms, in % of
3. Plan
4. Corresponding period for 1984
5. Average milk yield per cow at kolkhozes and sovkhozes, in kg
6. = kg for corresponding period of 1984
7. Kharyuskiy
8. Kingiseppskiy
9. Khaapsaluskiy
10. Valgaskiy
11. Paydeskiy
12. Pylvaskiy
13. Kokhtla Yarveskiy
14. Rakvereskiy
15. Tartuskiy
16. Pyarnuskiy
17. Raplaskiy
18. Yygevaskiy
19. Vyruskiy
20. Khiyumaaskiy
21. Vilyandiskiy

During the final year of the 11th Five-Year Plan, the republic fulfilled its socialist obligations in terms of milk yields: on the average, they amounted to 4,036 kilograms per cow (with the private sector being taken into account). This represented a great success.

Milk production increased in all of the rayons. Exceptionally fine work was performed by the livestock breeders in Kharyuskiy Rayon, where during the year the milk yields increased by 268 kilograms and the average indicator amounted to 4,247 kilograms. The victory achieved by the workers in Kharyuskiy and Rakvereskiy rayons becomes even more meaningful when one considers that the numbers of dairy cattle increased in these rayons. The workers in Paydeskiy, Pyarnuskiy and Vilyandiskiy rayons also achieved the 4,000 kilogram level, but with reduction in the numbers of their cows.

At the same time, in December of last year the milk yields declined by 5 kilograms compared to December 1984 and in Pyarnuskiy and Vyruskiy Rayons -- by 20 kilograms.

Last year, there was not one farm in the republic where the milk yield was lower than 3,000 kilograms and 13 farms reached the 5,000 kilogram level.

The socialist obligations for this year are confronting the kolkhoz and sovkhoz livestock breeders with the task of obtaining 4,010 kilograms of milk per cow. Thus, in addition to exemplary organization of livestock wintering operations, a requirement also exists at the present time for devoting thought to the summer pastures and to measures aimed at raising the productivity of the grazing lands and forage crops and improving the veterinary service. Last year, only 80 calves were obtained per 100 cows (one less than in 1984). On many farms in Tartuskiy, Pylvaskiy, Yygevaskiy, Rakvereskiy and Valgaskiy rayons, the figure was even less (84-85 calves were obtained per 100 cows on a majority of the farms in Kharyuskiy Rayon).

The average sales weight for cattle is increasing. In 1982 it amounted to 404 kilograms and last year -- 448. But it is recalled that the obligation is to sell cattle weighing 450 kilograms. In particular, the farms in Pylvaskiy, Pyarnuskiy, Tartuskiy and Vilyandiskiy rayons have fallen behind in this respect. An increase in the average sales weight is one of the conditions for increasing meat production this year. It is not possible to increase considerably the number of cattle sold, since at the beginning of this year the number of cattle was 2 percent less than 1 year ago.

The daily weight gains in animals undergoing fattening regimes are constantly increasing: in 1984, it amounted to 607 grams for cattle and 468 grams for hogs and last year the figures were 637 and 481 grams respectively. However, we cannot rest content with the results already achieved. At times, it is all too easy to blame failures on poor weather, particularly in the face of a lack of order and mismanagement. The party organizations must focus attention on this matter.

The management of farms and the specialists and party organizations must also devote more attention to the dissemination of leading experience and to raising the professional expertise of livestock husbandry personnel. Unfortunately, the ranks of livestock breeders still include many haphazard individuals. High requirements can be imposed only upon highly skilled personnel and the time is at hand for selecting in a very thorough manner those personnel who are to work on the farms.

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SPECIALIZED LIVESTOCK FARMS IN MEAT-COMBINE ZONES RECOMMENDED

Moscow MYASNAYA INDUSTRIYA in Russian No 12, Dec 85, pp 5-9

[Article by Prof S.S. Shnitser, doctor of economic sciences, All-Union Scientific-Research Institute of the Meat Industry: "On the Creation of Specialized Livestock Farms in Stock Zones of Large Meat Combines"]

[Text] In conformity with decisions of the April (1985) CPSU Central-Committee Plenum a radical turn must be achieved during the 12th Five-Year Plan in the direction of economic intensification on the basis of acceleration of scientific and technical progress. A task was set for all sectors of industry--to determine ways of development for the period to the year 2000, ensuring a higher technical level for enterprises, greater production volume and fullest possible use of production resources.

In the years of the Soviet power, a strong meat industry was created that is outfitted with modern equipment. Hundreds of meat combines and meat-processing plants were built and most existing enterprises have been modernized. At the present time, the sector has about 1,000 enterprises of different types and sizes located in all the regions of the country--both in centers of meat-products consumption and in stock regions.

Significant progress in the development of the meat industry can be traced on the basis of data presented below:

	1970	1984	1984 in % of 1970
Fixed industrial production capital of USSR Min. of Meat & Dairy Industry	1.7	5.0	2.9-fold
Industrial production, millions of tons			
meat	7.1	10.6	1.5-fold
sausage products	2.3	3.3	1.4-fold
Production of marketable products per ton of raw materials, thous. rubles	1.4	1.55	110
Labor productivity (marketable-products output per worker), thous. rubles	50.0	61.0	122

But the sector's production potential is not being fully utilized. The meat industry possesses significant reserves for further growth of production output, improvement of its quality and expansion of assortment.

The annual capacity of industrial enterprises working on two shifts is determined on the basis of calendar availability of time following exclusion of days off, holidays and time for capital and planned preventive maintenance (during worktime). In conformity with this, industrial enterprises must operate in the course of a year approximately 600 shifts (365-(52+7+6)).

While taking into account seasonal fluctuations of livestock arrival, the meat industry is permitted an exception: in determination of the capacity for meat production, the relative share is taken into account of the maximal-load of the enterprise and the number of workdays in the month. For example, with a shift capacity of 100 tons of meat, the relative share of the maximal-load month of 12.5 percent and operation of 42 shifts in this month, the number of operating shifts for the year is 336 ((100x42):12.5).

Under conditions of an equal load of the principal forms of raw material (for small horned livestock and poultry, seasonal fluctuations are inevitable), the sector's enterprises could operate a minimum of 500 shifts in the course of the year, and the year's production of meat under the existing shift capacity would be 15 million tons. Actually in 1984, 8.3 million tons of meat were produced at the sectors enterprises (not including grade 1 byproducts), that is, the potential capabilities of the sectors were only 56 percent utilized.

Large meat combines are in a most unfavorable position. The system of the USSR Ministry of Meat and Dairy Industry has about 50 large meat combines (5 percent of the total number of enterprises) with about 25 percent of the industry's total capacity for meat production. Most of these enterprises are located in large meat-consumption areas, the raw-material zone of which possesses extremely limited resources. The construction of these enterprises was essentially carried out in the prewar years.

The large meat combines in 1984 operated only 230 full shifts. With a uniform load (500 shifts a year), they could produce 3.5 million tons of meat, but they actually put out 1.6 million tons, that is, their capacities were only 46 percent utilized.

The extent of the meat-production load of individual enterprises (excluding poultry) in 1984 is shown by the following data:

Meat combines	% of load
Moscow	38.6
Leningrad	40.9
Ivanovo	36.0
Yaroslavl	16.1
Engels	44.8
Sverdlovsk	40.2

Omsk	37.5
Irkutsk	29.0
Ulan-Ude	24.3

A first-priority task in the immediate future will be increasing the load of existing enterprises. Construction of new meat combines should be carried out only in exceptional cases--in places where no enterprises exist or where it is impossible to increase the capacities of existing enterprises, as a result of which the necessity arises of shipping livestock to distant enterprises.

What are the reasons for partial use of existing enterprises' capacities? First of all, it should be pointed out that many enterprises because of disparity of capacities of principal and auxiliary production operations as well as "bottlenecks" cannot operate for all practical purposes with a full load. Disproportions are to be found between capacities for butchering livestock, processing the products of butchering and meat refrigeration and freezing. An indispensable condition of full utilization of existing enterprises' capacities is their reequipment. Capital allocated for the development of the sector's material and technical base should be allotted for this purpose.

The chief reason for the low load of existing enterprises is lagging development of the sector's raw-material base. In the 3 years that have elapsed since the time of establishment of the USSR Food Program, definite progress has made in the development of animal-husbandry farms, which in turn has contributed to accelerating the growth rate of meat production (Table 1).

Table 1

Indicator	Meat production growth rate	
	1982 in % of 1980	1984 in % of 1982
Meat production		
gross (in dressed weight)	2.0	8.5
industrial (grade 1 byproducts)	2.2	14.0

Definite achievements in the development of the meat industry's raw-material base in recent years are shown by the data presented in Table 2 ("SSSR v tsifrakh 1984 g. [USSR in Figures for 1984]. Moscow, Finansy i Statistika, 1984.).

At the same time the attained level in the development of the sector's raw-material base is still far from adequate. According to 1984 data, gross

Table 2

Indicator	1980	1984	1984 in % of 1980
Number of livestock (at the end of the year, millions			
large horned cattle	115.1	120.9	105.0
pigs	73.4	77.8	106.0
small horned cattle	147.5	148.9	101.0
Meat production in dressed weight, millions of tons	15.1	16.7	110.6
State livestock and poultry purchases (in live weight), millions of tons	16.0	18.2	113.8
Industrial production of meat and grade 1 byproducts, millions of tons	9.1	10.6	116.5

production of meat per head of livestock in the herd (at the beginning of the year) amounted (in kg) for: large horned cattle--60, pigs--74 and small horned cattle--5.3. This is significantly lower than in the most developed foreign countries. The average weight in 1980 of large horned cattle shipped to meat combines was 354 kg, of small horned cattle--38 kg and in 1984, respectively, 362 and 36 kg. The attained weight level of the animals is significantly below the optimal weight of large horned cattle (400-450 kg) and small horned cattle (40-65). The relative share of nonfattened livestock is still great in the meat industry's deliveries. The principal direction of animal-husbandry development is qualitative improvement and raising of livestock productivity rather than numerical growth.

Of primary importance to improvement of organization of the raw-material supply of the meat industry's enterprises is uniform loading of the sector's fixed capital.

The instability of the sector's raw-material base has an extremely negative effect on use of production capacities. Arrival of livestock at meat combines sharply fluctuates according to years, which can be seen from the following data on meat production at enterprises of the USSR Ministry of Meat and Dairy Industry:

Year	Tons, millions	% of 1955
1975	8.9	--
1976	7.0	78.5
1977	7.6	85.7
1978	8.0	89.3
1979	7.9	88.5

1980	7.4	83.2
1981	7.4	83.5
1982	7.5	84.3
1983	8.2	92.2
1984	8.6	96.7

More pronounced fluctuations of meat production volume occur in the course of the year. Thus during months of maximum arrival of raw material, meat production exceeded the minimum load month by 1.9-fold in 1980 and 1.6-fold in 1984. For individual oblasts in 1984, these indicators were as follows: for Altay Kray--1.9-fold, for Chelyabinsk Oblast--twofold, for Novosibirsk Oblast--1.9-fold and so on.

For the purpose of ensuring uninterrupted livestock processing, the meat industry is obliged to have reserve capacities. This circumstance is taken into consideration in determination of a meat combine's planned capacity. With a full and uniform load, the meat combine would have to operate no less than 500 shifts in the course of the year. But, taking into consideration seasonal arrival of livestock, meat production capacity is determined in construction of enterprises on the basis of roughly 350 shifts, that is, provision is made for partial utilization of potential meat-production capabilities. Actually, the meat industry is obliged to have more substantial reserves of capacities since livestock arrives irregularly over the course of the year, the biggest load being observed in the third 10-day period of the month. This is the reason for low yield on capital in the meat industry.

Partial loading of production capacities, low quality of raw material and irregularity of its arrival negatively influence the industry's operation. During the interseasonal period equipment downtime and worktime losses occur and during the heavy butchering season--losses and reduction of product quality. Because of production unevenness, high turnover of the work force is observed, which negatively affects labor productivity. All these circumstances retard technical progress and impede the use of intraindustry reserves. Serious shortfalls in raw-material supply negatively influence particularly the operation of large enterprises lacking the possibility of realizing the economic advantages of concentration of production.

Among measures for boosting animal husbandry, a major role belongs to specialization and concentration of production. In recent years, work has been going on in agriculture in setting up specialized animal-husbandry farms of various types. At the same time, the creation of specialized farms for rearing and fattening young large horned cattle as well as of pig complexes (farms for fattening pigs) is of major importance.

In grain regions (Krasnodar, Stavropol and Altay krays, Orenburg and Rostov oblasts and others), kolkhozes and sovkhozes, possessing adequate fodder resources have the possibility of bringing up to the required condition livestock intended for butchering.

Another situation exists in regions of dairy animal husbandry in which the basic contingent of large horned cattle--cows--and fodder resources are

limited. These farms do not have the possibility of fattening up bull calves and heifers not needed for replenishment of the herd and consequently are obliged to turn them over for butchering in a low-weight condition. For the purpose of increasing the material interest of farms in turning over heavy-weight young stock, purchase prices for this live stock have been boosted by 30-50 percent. This measure under the conditions of dairy farms, however, is not producing the necessary result because they do not have the possibility of carrying out young-stock fattening.

For the purpose of increasing raw-material resources and fuller utilization of the meat industry's production capacities in the raw-material zones of large meat-combines located in dairy animal-husbandry regions, it is necessary to create a network of specialized farms for rearing and fattening young stock (complexes, farms, mechanized facilities).

In oblasts where dairy animal husbandry is predominant, the number of cows (in thousands of head) is significant: Moscow--549, Leningrad--261, Ivanovo--175, Yaroslavl--227, Bryansk--356, Kalinin--427, Tula--345 and so on.

Hundreds of thousands of calves are born each year in these regions. With the presence of specialized farms for fattening young bulls and heifers not needed for replacement of stock, it should be possible to bring them up to butchering condition (400-450 kg) and ensure their uniform turnover for butchering. For example, in Moscow Oblast in a year 500,000 calves can be bred (taking into account calving of young cows that had not calved heretofore) and 350,000 young bulls and heifers not used for replacement of stock fattened. This would permit sending for butchering approximately 140,000 tons of cattle fulfilling quality requirements.

No less difficult is the question of delivery of pigs to large enterprises. The most effective solution is creation of specialized pig-raising complexes and farms for fattening pigs in meat-combine zones.

The quality and capacity of specialized farms providing a supply for loading meat combines basically depends on the capacity of enterprises. Thus in the zone of a meat combine with a capacity of 150 tons of meat per shift (including 75 tons of beef and 75 tons of pork), operating 500 shifts a year, it is necessary to receive roughly 200,000 head of large horned cattle and 600,000 pigs. This requires the creation of a minimum of 8-10 specialized farms, each of which possesses 15,000-20,000 livestock places for fattening young stock and 6 pig complexes with a capacity of 100,000 pigs a year.

The question of utilization of the capacities of the largest meat combines--Moscow's and Leningard's--requires special consideration.

These enterprises have been receiving livestock for a number of years from distant regions of the country, which is coupled to considerable losses of animals' weight and high costs of transporting them.

In the beginning of the '70s a proposal was made to build close to Moscow a number of meat combines for the purpose of providing the capital with refrigerated meat and to gradually reduce and subsequently eliminate in its

entirety butchering of livestock in Moscow. The meat combines built in recent decades have diverted from the Moscow Meat Combine a considerable quantity of raw material, as a result of which the volume of meat production in it shrank from 199,000 tons in 1975 to 96,000 tons in 1984. At the same time, events confirmed the inadvisability of halting livestock butchering at Moscow's meat combine. The elimination of livestock butchering at this enterprise would require significant capital investment for the construction of new and the expansion of existing enterprises. It would be more efficient to utilize more fully the existing capacities of the Moscow Meat Combine. Moreover, the need should be taken into account of providing no less than 20-25 percent of the capital's meat requirements through local butchering (for the production of semifinished products and supplying hospitals, children's institutions and others).

One of the arguments in favor of eliminating livestock butchering at the Moscow Meat Combine was the allegation of the undesirability of bringing livestock into Moscow because of sanitary and hygienic reasons. This argument cannot be considered convincing: receiving and preslaughter maintenance of livestock must be carried out at suburban locations from which the livestock would arrive for butchering on the basis of an hourly schedule, and the production quarters would have to be equipped with deodorizing devices. In order to ensure loading of the Moscow Meat Combine without resorting to bringing in livestock from long distances, it would be necessary to create in the raw-material area 30-40 specialized farms for fattening livestock and about 30 pig-growing farms.

A comparable situation exists at Leningard's meat combine. As the result of curtailment of shipping livestock from distant regions, meat production in Leningrad Oblast was reduced from 182,000 tons in 1975 to 105,000 tons in 1984.

An increase in the load of the Leningrad Meat Combine should be done by the creation of a large raw-material base in the oblast. It would be sufficient for the Leningrad Meat Combine to have in its raw-material area about 20-30 farms for fattening livestock and about 20 pig complexes.

For the purpose of expanding the scale of fattening, it would be advisable to deliver calves to these farms from nearby regions. Delivery of calves by railroad or motor transport is considerably more effective then bringing in livestock for butchering that fulfill quality reuirements.

In case of a shortage of concentrated feed in places where the farms are located, it would be useful to bring it in from other regions of the country. The feasibility of bringing in concentrated feed can be judged by the comparative transportation costs of 1 ton of meat and 1 ton of feed (Table 3).

The difference in the delivery costs of meat and concentrated feed by railroad is due to differences in rates for refrigerator cars and grain cars as well as car loading norms: the holding capacity of a refrigerator car is approximately 10 tons of refrigerated meat and of a grain car--60 tons of feed.

Table 3

Distance, km	Railroad shipping rate charges, rubles			
	meat		concentrated feed	
	car	1 ton	car	1 ton
100	114	11.4	54	0.90
300	148	14.8	82	1.36
500	184	18.4	112	1.90
700	220	22.0	142	2.37
1,000	269	26.9	183	3.05

Significant differences are also observed in rates for delivery of meat and concentrated feed by motor transport (Table 4).

Table 4

Distance, km	Rate charges (for the RSFSR) for delivery of 1 ton, rubles	
	refrigerated meat	concentrated feed
50	6.42	2.46
100	10.29	3.96
200	17.24	6.63
300	23.71	9.12

Transportation of one ton of refrigerated meat is about three times as expensive as that of concentrated feed.

With expenditure of 3-4 kg of concentrated feed per kilogram of weight increase, feed delivery to livestock fattening locations is more efficient than transportation of meat. The needs of fattening farms for coarse, green and succulent fodder have to be provided from local resources.

The preferability of fodder delivery to meat delivery is also due to the fact that capital outlays for construction of refrigerator cars significantly exceed the cost of ordinary means of transport. It should also be taken into consideration that refrigerator cars return empty, while ordinary means of transport can also be used in the return direction.

Implementation of the program of construction of farms for fattening young stock, pig complexes and fattening pig farms requires considerable capital. Bringing the raw-material base to processing complexes would make it possible to save significant capital outlays and to significantly boost the economic effectiveness of the existing enterprises's operation. With a full load for large meat combines, meat production could be increased from 1.6 to 3.5 million tons a year and, taking into account reequipment, to 4 million tons, that is, 2.4 million tons more than the production level in 1984.

At the present time, when the meat industry has become a partner of the agroindustrial complex, a need has been determined for broader integration of the sector with agriculture. In the areas of the large meat combines, farms should be created for fattening young stock, pig complexes and pig farms on the type of interfarm enterprises with the participation of production associations (enterprises) of the meat industry.

For the purpose of increasing the material interest of kolkhozes and sovkhozes in organizing interfarm enterprises, it would be useful to take into consideration turnover of livestock to meat combines on the strength of state-purchase plans established for farms, taking into consideration their participation in delivery of fodder and livestock for fattening.

In addition to interfarm enterprises, it would be useful to create fattening farms (mechanized facilities) within the system of the USSR Ministry of Meat and Dairy Industry and to finish and fatten livestock that does not fulfill quality requirements.

A cardinal solution of the problems of raw-material supply for large enterprises can be achieved only by the creation of a network of specialized enterprises for fattening young stock, rearing and fattening pigs in the raw-material zones of meat combines.

7697
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LIVESTOCK

IMPORTANCE OF SMALL HOGBREEDING FARMS IN RSFSR CONSIDERED

Moscow SELSKOYE KHOZYAYSTVO ROSSII in Russian No 1, Jan 86 pp 34-35

/Article by V. Perminov, chief of the Swine Husbandry Administration and deputy chief of the Main Administration for RSFSR Ministry of Agriculture: "Small But Necessary"/

/Text/ Seventy percent of all pork produced in the public sector is being sold to the state by more than 1,500 kolkhozes and sovkhozes, of which the leading branch is swine husbandry. As a rule, these are large and well-organized farms which possess a high degree of livestock concentration and a modern flow-line technology and which operate on a profitable basis. At the same time, there are many small and average size swine husbandry farms in the RSFSR which have from 500 to 5,000 animals. At the beginning of 1985, there were more than 15,000 establishments having such farms. These kolkhozes and sovkhozes possess considerable land areas and feed resources and thus they can make a considerable contribution towards increasing the meat resources.

At some establishments there are "seasonal" farms which do not require substantial facilities. Here they purchase replacement pigs at the beginning of the year, see to it that they are impregnated, obtain young pigs in the spring and raise the latter to delivery condition in cheap facilities or in summer camps. Moreover, all of the offspring obtained are sold to the population or turned over to kitchen farms. Such farms are non-commodity or subsidiary enterprises.

Unfortunately, the return from small and average size farms is not very great, the production of young pigs takes place slowly on them and the number of pigs increases at a very unsatisfactory rate. And the chief reason for this -- shortcomings in the organization of labor, a lack of control and excessive forage expenditures per quintal of weight increase. Many of the small farms produce only losses for their establishments. Quite often the kolkhoz and sovkhoz leaders, instead of providing the small farms with assistance, strive to eliminate them. The solution is a simple one, albeit not the best. And this fact is well understood in many oblasts. At the present time, swine husbandry farms eliminated earlier are being restored and new ones organized at establishments in Bryansk, Vladimir, Yaroslavl, Voronezh, Kursk, Saratov and Rostov oblasts and in the Maritime Kray.

However, many scientific workers, economists and farm leaders and specialists still entertain doubts: under the conditions imposed by specialization and

concentration, can the branch continue to concern itself with small and average size farms? Beyond any doubt, it can, since their potential has by no means been exhausted. Fine results can be achieved with efficient production organization and a strong feed base, particularly in view of the fact that it is stated directly in the Food Program that in addition to organizing highly intensive swine husbandry operations at industrial farms and complexes the potential for increasing the production of pork on the farms of non-specialized kolkhozes and sovkhozes, at subsidiary agricultural enterprises and organizations and on the private plots of citizens should be realized more fully. At each kolkhoz and sovkhoz where the appropriate conditions are found, there should be swine husbandry farms for satisfying the meat requirements of the farms and also for selling young pigs to the population.

In order for the farms to operate on a profitable basis, maximum use should be made of their internal feed resources. Analysis has shown that the expenditure of concentrates in the ration structure for pigs at small and average size farms fluctuates on the order of 60-70 percent, whereas on the average for the republic, including large-scale complexes, this indicator is considerably higher.

At the Kolkhoz imeni M.I. Kalinin in Talovskiy Rayon in Voronezh Oblast, where swine husbandry is also not the chief but rather an auxiliary branch and where there are 1,700 pigs, more than 100 kilograms of meat are being produced per initial head. A stable feed base has been created here. The animals are being fed mainly damp feed mixtures, with use being made for this purpose of all types of grain feeds -- peas, oats, barley and corn. The young stock are being supplied with meal made from alfalfa hay in the form of vitamin feed. During the wintering period, the pigs were fed 4,000 tons of silage, 3,700 tons of vegetables and root crops and 1,400 tons of potatoes. There are five pig raising facilities at the kolkhoz: two pigsty-stock nurseries, one for barren and pregnant sows and two for maturing and fattening. All of the buildings are made from brick and wood. Feed is brought in by horses and horses are used for removing the farmyard manure. All 1,700 head are serviced by four individuals. This departmental system has received strong approval within swine husbandry operations.

At the Bolshevik Kolkhoz in Pogarskiy Rayon in Bryansk Oblast, pork constitutes 60 percent of the overall volume of meat being obtained. Last year, pork production per initial head amounted to 111 kilograms. These high indicators were achieved mainly as a result of maximum use of internally produced feed and improvements in the feed preparation and pig feeding systems. This farm has a strong feed base at its disposal. Each year 27 quintals of grain, 220 of potatoes, 420 of root crops and 230-256 quintals of silage crops are obtained per hectare. In addition to 4,300 pigs, the farm also maintains 2,030 head of cattle. The output of young pigs per 100 principal sows was approximately 2,000 head. The average daily increase in hog weight during fattening reached 490 grams.

The kolkhoz's specialists are devoting increased attention to the efficient use of feed, especially concentrated feed. All forage is subjected to appropriate treatment prior to being fed to the animals. The grain is milled on mechanical crushers. A feed preparation shop has been organized and is in constant

operation. Mixtures are prepared here for each sex and age group of animals. Extensive use is being made of succulent feeds.

A thrifty attitude towards the use of concentrated feed enabled the kolkhoz to lower the consumption of forage per quintal of weight increase in hogs to 6 quintals of feed units, including concentrated -- 4.4. The production cost per quintal of weight increase -- 170 rubles. During 1984 the farm earned 1.4 million rubles worth of profit, including 328,000 rubles worth from swine husbandry operations.

At the Leninets Kolkhoz in Bryansk Oblast, swine husbandry is developing successfully based upon the use of internally produced feed. Here this branch provides considerable assistance in carrying out the plans for selling meat to the state. The hog farm is maintaining 2,200 animals, including 70 principal and 180 checked sows. In 1984, two farrowings were obtained per sow.

The farm owes its high indicators to summer camps, where up to one half of the new-born young stock is obtained each year. The camps appear as a platform under a single roof that has been divided up into 30 stalls. A small yard for grazing and pasturing of the young pigs stands immediately in front of each stall. Alongside there are sowings of leguminous perennial grasses. The green conveyer line also includes vegetable crops -- carrots, marrow squash and pumpkins.

Pasturage for the animals and balanced feeding, including maximum use of succulent feeds, make it possible to obtain stable weight increases during fattening. In 1984 the proportion of concentrates in the rations was only 64 percent. Mixed feed expenditures per quintal of weight increase amounted to 4.48 quintals of feed units.

Mixed silage constitutes a considerable portion of the feed at the kolkhoz. It is placed in lined trenches at the rate of not less than 4 tons per principal sow and in accordance with the following recipe: corn fodder -- 30 percent, beets with haulm -- 20, potatoes -- 20, carrots -- 10, vegetables (marrow squash, pumpkins) -- 15 and grass meal -- 5 percent.

The kolkhoz considers potatoes to be a mandatory component in the preparation of mixed silage, since this feed is rich in starch, microelements and vitamins and possesses a high degree of digestibility. The hogs willingly consume mixed silage that contains potatoes. It also possesses the advantage that it can be stored for an extended period of time, thus making it possible to ensure that the animals are supplied with biologically rich and readily assimilable nutrients throughout the winter.

When procuring this type of feed, it is tamped down well and covered as rapidly as possible. It is taken out in small dosages in the interest of preventing oxidation. The silage bulk is fed to hogs in pure form or in a mixture with other feeds.

As a rule, the work carried out on small and average size hog farms is organized on a collective contract basis.

Examples can be found in each oblast of efficient work being carried out on small and average size swine husbandry farms and of the rational use of feed resources for developing swine husbandry operations. The task of the local agricultural organs consists of attentively studying the operational experience of farms which are utilizing internally produced feed on an intensive basis, accepting this experience into their own operational practice and ensuring that it is disseminated on an extensive scale.

7026
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REGIONAL DEVELOPMENT

FAMILY CONTRACT SYSTEM COULD SPREAD IN GEORGIAN HIGHLANDS

Tbilisi KOMUNISTI in Georgian 4 Dec 85 p 2, 12 Dec 85 p 3

[Editorial Report] Tbilisi KOMUNISTI in Georgian on 4 December 1985 carries on page 2 Dzh. Mekhrishvili's 1600-word account of the party conference in Mestia Rayon, which focused largely on pluses and minuses of the family contract experiment underway on two local sovkhozes since 1983 in line with a Council of Ministers decree of 12 July 1983. Until the method was instituted, 80-85 percent of the population was unemployed 8 or 9 months of the year and total earnings averaged 80 to 120 rubles. Some 193 persons migrated to the lowlands between 1979 and 1983.

All that has turned dramatically around now, as numerous cited figures attest. Under the system, livestock (cattle) is assigned to families in accordance with an agreement between family heads and sovkhoz officials, who are bound to supply feed as well as building materials to quarter the animals. Families are allotted extra land in addition to household plots. Free automotive transport and vet services are provided. Reciprocal rights and penalties are stipulated. Practices forbidden to the family contractor include the use of hired labor.

Among other benefits, migration has halted, and administrative apparatuses have been slimmed down, saving thousands of rubles. Plans are regularly overfulfilled.

There are a few minuses to the picture. Some of the participating families are not really producing. Sovkhoz administrations have not kept their part of the bargain with respect to the supply of building materials (the raykom ought to be looking into this). Radio services and other cultural amenities and facilities are quite inadequate. The author of the article suggests, in addition, that participating families ought to be given the use of trucks appropriate to highland conditions during each season, for the traditional two-wheeled carts and sledges are inadequate to the difficult task of bringing hay and feed down from mountain pastures before the snow falls.

If the experiment continues to be successful, it is likely to be tried in other highland districts of Georgia.

KOMUNISTI on 12 December page 3 carries G. Nodia's 1200-word interview with Mestia Rayon First Secretary Murad Ushkhvani covering most of the same topics and citing figures that show a substantial jump just from 1984 to 1985. In addition, it is noted that the experiment required the introduction of new administrative slots for the participating sovkhozes: A deputy director for procurement, a procurement worker [zagotovitel'], and a land-use agronomist. To supervise the undertaking, a special commission was set up in the State Committee for Agricultural Production and in the Mestia RAPO. This article also mentions several problems: Most particularly, the lack of suitable transport and equipment--participating farmers are the last ones in Georgia still mowing hay with scythes and sickles and hauling it on sledges and their own backs. The Meat and Dairy Ministry was supposed to see to the building of a local slaughtering facility but has not got around to it. The district still lacks roads to many pastures and hayfields.

6854/13104
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AGRO-ECONOMICS AND ORGANIZATION

PROSPECTS FOR VOLGA REGION PRIVATE PLOT DEVELOPMENT DISCUSSED

Saratov STEPNYYE PROSTORY in Russian No 12, Dec 85 pp 5-7

/Article by economists M.S. Gavrikov, V.B. Samsonov and Yu.V. Panteleyev, Saratov: "Private Plots: Problems and Prospects"/

/Text/ Over the past 15-20 years -- with the overall trend being towards a decline in the proportion of LPKh's /private plots/ participating in agricultural production and in the income of the population -- during certain intervals of time and in particular regions of the country, including in the Volga region, an increase has taken place in the absolute level for the proportion of these plots in the production of certain valuable food products and in the income for a number of categories of citizens.

Unfortunately, in its modern form an LPKh cannot be considered as an efficient form of socialist management. The tense nature of the manual labor performed exhausts strength, leaves very little time for leisure activities, is not attractive to youth and hinders the complete utilization of its food potential. Here we find an entire cluster of problems. It is difficult for the rural workers to combine their activities in the public and private sectors. In many regions of the Volga area, the conditions required for supplying the LPKh's with adequate quantities of feed are still lacking. Experiencing a shortage of working hands, the kolkhozes and sovkhozes are striving to attract into their production operations a greater number of housewives, able-bodied pensioners and other citizens who worked previously only on LPKh's. During the period from 1959 to 1970, the number of persons in the Volga area working only on LPKh's decreased sharply (by a factor of more than 11) and amounted to 54,200 individuals, of which number 50,900 were located in rural areas. And in 1979, according to data obtained from the all-union census, it decreased to 26,400 individuals. This underscores the fact that for all practical purposes the operation of LPKh's is no longer an independent sphere of activity for the zone's population.

Measures aimed at halting the undesirable trend towards a curtailment of production on the LPKh's have not always produced the desired results. In six out of ten economic regions of the RSFSR, the value of the average annual gross output of the private sector of agriculture declined during both the 9th and 10th five-year plans. During the second half of the 1970's, it increased only in two regions -- the Far East and the Volga area.

The existing proportions have also been disrupted. During the 9th Five-Year Plan, the number of cattle on the private plots of citizens in Saratov Oblast declined by 14 percent, while an increase of 16 percent was noted at kolkhozes and sovkhozes. During the years of the 8th and 9th five-year plans, the production of meat and milk on private plots in Volgograd Oblast declined in inverse proportion to growth in the volumes of these products in the public sector. During this same period, a continuous increase took place in the production of potatoes, vegetables, meat, milk, eggs and wool in the public sector in RSFSR agriculture, while almost no change was noted in the volumes for these products on the private plots.

The rates of growth for gross agricultural output in the public and private sectors differed substantially (see Table 1).

TABLE 1

Rates of Growth for Country's Gross Agricultural Output During 1965-1980 Period (1965 = 100%)

	1970 г.	1975 г.	1980 г.
Все категории хозяйств (1)	123	126	136
в том числе: (2)			
колхозы, совхозы и другие производственные сельскохозяйственные предприятия	128	133	150
личные подсобные хозяйства (3)	111	110	107

Key:
1. All farm categories, including:
2. Kolkhozes, sovkhozes and other agricultural production enterprises
3. Private plots

The disproportions which arise between the public and private sectors adversely affect the well-being of the workers. For example, a decline in production on the LPKh's brings about an increase in prices on the kolkhoz market. The market prices for a majority of the types of livestock products are higher than the state prices. Based upon the labor principles for distribution, citizens who acquire products on the market receive fewer material blessings. Thus, residents of Moscow procure 80 percent of their meat and butter in state stores, whereas residents of oblast centers in the Volga area receive only 40-50 percent.

The measures undertaken by the party and government aimed at improving relationships between the public economy and the private plots produced a definite effect: in 1977 and 1978, a reduction was noted in the degree to which the number of cattle in the private sector was declining, an increase took place in the numbers of hogs and sheep and the production of meat, eggs, wool and milk turned out to be higher than during the previous 2 years.

The creation of additional favorable conditions for the development of private livestock husbandry operations made it possible to achieve definite successes during earlier years. Thus the number of cows on private plots of the population in Astrakhan Oblast increased during 1971, 1973 and 1974. In Volgograd Oblast,

during 1973 and 1974 alone, the number of cattle on the private plots of citizens increased by 13 percent, hogs by 31 and goats by 12 percent. During the first half of the 1970's, the production level for eggs and wool also increased here compared to the 8th Five-Year Plan.

A noticeable increase is now being observed in the number of animals being maintained on private plots of the population in Saratov Oblast. Moreover, special reliance is being placed upon the LPKh's for the production of early-maturing pork: during the 1980-1984 period, the number of hogs in farmyards of the population increased by 22 percent.

The modern scales for the production of individual types of agricultural products on LPKh's in the zone are quite substantial. True, the proportion of LPKh's engaged in marketable production during the 1971-1980 period declined in the case of wool by 8.7 percent, eggs -- 6.2, potatoes -- 15.4 and vegetables -- by 7.7 percent. However, if we take extended intervals of time, then the value of the overall volume of output production on LPKh's, expressed in 1973 prices, shows a tendency to increase. During the 1961-1965 period, it amounted to 2,324,000,000 rubles, in 1966-1970 -- 2,490,000,000, 1971-1975 -- 2,460,000,000 and during the 1976-1980 period -- 2,579,000,000 rubles (see Table 2).

TABLE 2

Average Annual Volumes of Marketable Production of Agricultural Products on LPKh's in Volga Area

Виды продукции (1)	1971—1975 гг.		1976—1980 гг.		
	тыс. т (2)	% от всех категорий хозяйств (3)	тыс. т (2)	% от всех категорий хозяйств (3)	% роста (4)
Мясо, всего (5)	521,4	31,4	549,5	31,6	105,4
в том числе:					
крупного рогатого скота (6)	204,4	25,5	224,0	25,5	109,6
свиней (7)	129,8	27,0	154,1	32,6	118,7
овец (8)	115,6	49,6	97,0	46,8	83,9
птицы (9)	63,3	52,0	68,2	42,3	107,7
Молоко (10)	1551,5	29,2	1666,7	27,9	107,5
Шерсть (11)	12,02	30,1	11,31	21,4	94,1
Яйцо (млн. шт.) (12)	1800,3	47,0	1795,2	39,8	99,7
Картофель (13)	3166,5	73,4	3032,5	59,0	95,7
Овощи (14)	312,2	25,4	333,2	17,7	106,7
Плоды, ягоды (15)	110,3	55,6	145,0	54,1	131,5

Key:
1. Types of products
2. Thousands of tons
3. Percentage of all categories of farms
4. Percentage of growth
5. Meat, total
6. Including:
7. Cattle
8. Hogs
9. Sheep
10. Poultry
11. Milk
12. Wool
13. Eggs (in millions of units)
14. Potatoes
15. Vegetables
16. Fruit and berries

The value of the LPKh's as an auxiliary and extremely important source for supplying the population with food products is beyond question. However, that aspect of LPKh's which tends to describe them as being part of private commodity production is problematical. The danger from transforming LPKh's into commodity production lies in the fact that unearned income may occur here. Fear of this factor raises the desire to restrict and eliminate LPKh's as farms which are in conflict with the basic principles of socialism.

We are of the opinion that this fear is associated to a large degree with the difficulties and problems associated with controlling the development of LPKh's. We recall the old NEP /New Economic Policy (1921-1936)/ period when the Soviet Government had only "command heights" at its disposal. At that time, the country had undeveloped and non-cooperative agriculture. At that time, the development of the private peasant sector was considered to be economically advisable.

At the present time, when we no longer have individual peasants and the problem of restoring capitalism has generally been removed from the agenda, it is possible to allow the development of LPKh marketability, let us assume, within the limits of up to 40 percent of the average per capita income of rural families. This should ideally be done owing to the fact that the degree of productivity in the management of LPKh's is fully comparable to that for public production. In order to implement this proposal, it will be necessary for a great amount of preparatory work to be carried out mainly within the system of oblast and rayon agroindustrial associations. This includes the organization of an efficient system for accounting and reporting within the LPKh's (including production volumes, income receipts and so forth); LPKh specialization and cooperation; the creation of organized forms for supplying them with feed, light mechanization equipment, fertilizers, toxic chemicals and construction materials; centralization in the marketing and processing of LPKh products; publicizing the leading forms for LPKh management. Under the conditions imposed by planned accounting and centralized control within an agroindustrial complex, the problem of limiting the development of LPKh's has practically been eliminated. The local planning and administrative organs, by means of administrative levers and prices, can regulate certain managerial forms for the LPKh's and also prevent the trend towards the development of unearned income.

The private economy is a phenomenon that is neither temporary nor obligatory; control over the LPKh's is an extremely urgent task. An acceleration of scientific-technical progress, the introduction of special purpose-program planning and administrative improvements within the system of agroindustrial associations will promote improvements in the intensity and productivity and in the culture for managing the LPKh's. In such a form, it will continue to serve throughout the foreseeable future as an important auxiliary source of income for the workers and as a means for supplying the population with high quality and diverse food products in a stable manner.

In connection with the anticipated change in the size and structure of the rural population in the Volga area by the year 2010, the trend towards maintaining or achieving a moderate reduction in the LPKh production volumes, particularly those for meat, lard, milk and eggs, must be overcome.

In connection with forecasting the development of LPKh's, the following principal factors should be taken into account:

...a change in the size and age and sex structure of the rural population;

...the employment level on LPKh's for various age and sex groups of the population;

...a change in the level of intensity of LPKh management;

...the branch structure, the dimensions of the land areas and the number of livestock per plot are considered to be constant.

The degree of participation by the rural population was calculated for the following groups:

...a) males and b) females of working age, c) persons of pension age and d) juveniles (10-15 years of age).

When forecasting the size of the population for the period up to the year 2010, the requirement of the rural national economy for labor resources was taken into account. Consideration was also given to the potential for intensive agricultural development, as dictated by the need for an accelerated solution for the food problem and for ensuring that the population is supplied with the products of agricultural production and for the creation of the conditions required for bringing closer together the standards of living for cities and villages.

A second important indicator for LPKh's has been the specific labor expenditures for various groups of the rural population, determined on the basis of data obtained from budgetary examinations by the Saratov Oblast Statistical Administration and sociological studies. The comparative data for all of the examinations taken into account reveals that the highest specific labor expenditures on LPKh's were typical of persons in the able-bodied age group -- males and females, persons of pension age and substantially lower -- for juveniles. The effect of scientific-technical progress with regard to accelerating the level of intensity of LPKh management, for the future and up to the year 2010, was taken into account based upon data on the development of public agriculture over the past 20 years. The computations on changes in labor expenditures were based upon the indicators for the agricultural crop yields and the productivity of the livestock. Within the LPKh structure, the production of vegetables, potatoes, milk and meat is of great importance. They were selected as representatives for the development of NTP /scientific-technical progress/ as it pertains to the LPKh's. These assumptions are confirmed by the following fact: over a period of time, the productivity of LPKh management changes at the same rate as that for public agriculture. This is all associated with the action of opposing factors. For example, accelerated rates in the mechanization of labor in agricultural public production may be countered by the factor of a higher degree of utilization of resources and more thorough tending of plants and animals on the private plots of citizens.

Taking into account the mentioned factors, computations were carried out on the overall labor expenditures for LPKh's for the period being forecast (see Table 3).

The level of LPKh labor expenditures for the period 1979-2010 will decrease by more than twofold. Moreover, this reduction will be greater in livestock husbandry and less in field crop husbandry. The overall labor expenditures for LPKh's will decline at greater rates than those for public production. At the present time, the volume of LPKh labor expenditures amounts to 28.7 percent of those for a public farm and 51.6 percent of agricultural labor expenditures and by the year 2010 their volume will amount to 19.4 and 45.4 percent respectively.

TABLE 3

Forecast of Labor Employment on Private Plots of Rural Population in the Volga Economic Region for the Period Up To the Year 2010
(thousands of nominal annual workers)

Группы населения (1)	1970	1980	1990	2000	2010
Мужчины в трудоспособном возрасте (2)	98,4 53,5	202, 51,2	140,0 39,5	111,3 31,1	84,8 27,8
Женщины в трудоспособном возрасте (3)	282,6 70,3	282,4 76,2	192,5 54,7	146,8 44,2	117,7 41,5
Лица пенсионного возраста (4)	95,6 38,2	92,1 36,8	87,9 38,2	72,9 32,0	59,8 30,7
Лица подросткового возраста (5)	2,9 2,9	2,0 2,0	1,4 1,4	1,2 1,2	0,6 1,1
Всего (6)	480,5 145,0	579,0 166,2	431,8 133,8	332,2 108,5	262,8 101,1

Key:
1. Males of working age
2. Females of working age
3. Persons of pension age
4. Juveniles
5. Total

Note: The denominator reflects employment in the livestock husbandry branch and the numerator -- field crop husbandry branch.

In addition to a change in the size and structure of the population, the domestic requirements of a rural family are considered to be an important factor and one which makes it possible to foresee the trend in the development of LPKh's within the system of agroindustrial associations. In recent years, sociological studies carried out in villages in Saratov Oblast have shown that LPKh's occupy a leading place among these requirements. The management of LPKh's is considered to be of importance to 84 percent of the residents and is viewed as being an important type of activity by 53 percent of the residents interrogated and as a very important type of activity by 31 percent of those interrogated. On the whole, the mentioned evaluation by the villagers is inferior only to their evaluation of the importance of the work being carried out on the public farms. It is by no means an accident that in recent years the majority of the rural population has displayed an interest in managing LPKh's to the same or even to an increased degree and in the process they expect to live in homes of the farmstead type having good quality outbuildings for their privately owned livestock.

In this regard, a special and persistent need is being felt for improving control over the progressive trends in the development of LPKh's within the

system of agroindustrial associations. This will make it possible to utilize more completely the auxiliary role played by LPKh's in supplementing local food resources and in raising the incomes of low-salaried categories of rural workers.

The plans for regulating relationships between the public and private farms can be included in sections of the all-round plans for the socio-economic development of enterprises, administrative regions and oblasts. The planned logistical support for the LPKh's and the contractual relationships with their owners must take into account the peculiarities involved in the development of rayon agroindustrial associations. Thus, in regions where agroindustrial integration has achieved a rather high level of development and where the population's income is increasing rapidly, changes in the branch structure and in the age and sex composition of the LPKh labor resources are especially noticeable. Here, a trend towards a mass reduction in the production volumes for agricultural products on the private plots is usually expressed in the rural areas. Under such conditions, efficient planning for a division of labor between the public and private sectors is considered to be an extremely progressive matter. Thus the efficient specialization of LPKh's in the production of high quality food products and products which are in short supply in a given region, while utilizing a developed system of contracts between agricultural enterprises and consumer cooperation with the population, is considered to be quite proper.

The principal direction to be followed in the future development of LPKh's is that of their organic "inclusion" in a planned system of the socialist economy. A requirement exists for renovating the LPKh forms and methods for associating them with public production. A basically important method for modernizing the LPKh's consists of including them in the sphere of an agroindustrial complex and in a system of production and social relationships.

If we have in mind the more remote prospect of raising the economic effectiveness of LPKh's based upon strengthening their relationships with public production, then it can be said that this will produce more free time for the members of a rural family and it will intensify the amateur nature of their work performed in an orchard or garden, or on a private plot. As a result, under the conditions imposed by highly developed state agroindustrial associations, the management of it will lose its economic essence to a greater degree and the possibility is not excluded that it will develop into a form of labor, moral and aesthetic upbringing for workers and for developing their physical and mental capabilities.

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AGRO-ECONOMICS AND ORGANIZATION

FINANCIAL, ECONOMIC PROBLEMS OF APK ENTERPRISES VIEWED

Moscow DENGI I KREDIT in Russian No 12, Dec 85 pp 9-16

/Article by V.I. Ushakov: "To Promote Fulfillment of the Food Program"/

/Excerpt/ In speaking before a meeting of the party-economic aktiv in Tselinograd on 7 September 1985, M.S. Gorbachev stated: "We are presently confronted by a priority task -- that of achieving a high return from everything that agriculture and the agroindustrial complex as a whole have at their disposal."

As a practical measure aimed at overcoming backwardness in agricultural production, M.S. Gorbachev underscored the need for converting over to new and more progressive production technologies and to more efficient forms for utilizing material resources and concentrating them mainly in those areas where they can produce the greatest return. The effective use of irrigated and reclaimed lands and improvements in the storage and processing of agricultural products are of importance for achieving stable management of agricultural production and increasing the food resources.

A number of large-scale organizational and economic measures were recently carried out within the framework of the agroindustrial complex and a new system was created for administering them. More than 3,100 rayon agroindustrial associations were formed, the structure of which includes more than 50,000 agricultural and in excess of 7,800 industrial enterprises and organizations, almost 20,000 service organizations and more than 7,000 construction organizations. However, the administration of the agroindustrial complex requires further improvements. "If we are firmly convinced" emphasized M.S. Gorbachev during the April Plenum of the CPSU Central Committee, "that on earth there must be one master and that agroindustrial associations bear complete responsibility for the carrying out of the Food Program, then it follows that measures must be implemented which will make it possible to administer, plan and finance the agroindustrial complex as a single entity at all levels."

The Food Program is a most important component of the entire system of economic, organizational, political and social measures being carried out by the party and state. It calls for more complete utilization of the reserves and opportunities available for increasing considerably the food resources and improving supply for the population.

The State Bank carries out its work based upon the need for further raising the role played by financial-credit levers in the intensification of production, strengthening cost accounting procedures, reinforcing a regime for thrift and mobilizing intra-farm reserves. Making active use of the methods for bank stimulation and control, the State Bank system promotes fulfillment of the Food Program tasks, an increase in the production of agricultural products and the thrifty expenditure of resources in the economy.

More than 139 billion rubles are being allocated for supporting the tasks of the Food Program and for developing and improving the economies of branches of the agroindustrial complex during this current year and the capital investments will amount to 56.9 billion rubles. Moreover, a substantial increase will take place in investments intended for protecting production output and also for creating additional capabilities which will make it possible to accelerate the processing of agricultural raw materials and prevent output losses.

In the interest of ensuring stable growth in the country's food resources, a great amount of attention is being given to land reclamation and to raising the effectiveness of use of irrigated and drained lands. Roughly 11.5 billion rubles are being allocated for land reclamation work in 1985. By the end of the year, the overall area of reclaimed land will amount to approximately 35 million hectares. At the present time, with reclaimed land constituting approximately 14 percent of the country's overall arable land area, one third of the total volume of field crop husbandry output is being obtained from such reclaimed land. Agricultural machine building is undergoing thorough modernization.

Measures are being carried out directed towards the social transformation of the rural areas, further developing all aspects of the work of the agroindustrial complex, lowering the production costs for agricultural products, raising the profitability and strengthening the financial status of kolkhozes and sovkhozes and increasing the role played by credit in further strengthening the logistical base of the complex. In the final analysis, these factors will have a positive effect with regard to increasing production and improving the quality of the products.

A considerable contribution towards the successful implementation of the Food Program is being made by the subsidiary farms of enterprises, kolkhoz members and also by the members of orchard and garden associations, the development of which is being promoted by bank credit made available on favorable terms.

The construction in the rural areas of housing, schools, children's institutes, public health installations, municipal-domestic facilities and the road economy is being carried out at leading rates.

Great social-political importance is being attached to further improving the economy of the nonchernozem zone of the RSFSR. The kolkhozes and sovkhozes in this zone are being allocated 9.7 billion rubles.

Work is consistently being carried out aimed at further strengthening the economic and financial status of the country's kolkhozes and sovkhozes. In 1985, their profit (net income) will reach 23.9 billion rubles, the principal

portion of which will be used for economic and social development. Financial reserves in the amount of 4.5 billion rubles are being placed at the disposal of sovkhozes; this year, kolkhozes having insufficient profitability will be provided with budgetary funds in the amount of 3.3 billion rubles for housing, socio-cultural and road construction.

In connection with growth in socialist savings, budgetary appropriations and bank credits for use in developing the agroindustrial complex, the financial organs and institutes of Gosbank are confronted by the task of exercising effective control over the observance of planning, financial and payment discipline on the farms, the efficient and purposeful use of one's own and borrowed funds, the formation of reserve funds and over an increase in the return from each ruble of invested resources.

During the meeting of the party-economic aktiv in Tselinograd on 7 September 1985, M.S. Gorbachev noted that "we are still having to deal with workers who look for income sources not in high yields or livestock productivity, nor in thrifty management, but rather in obtaining budgetary appropriations and bank credits."

Many kolkhozes are still not observing the regulations concerning the correct combination in the distribution of income for consumption and savings or the formation and replenishment of indivisible and reserve funds. Thus, in 1984, without having fulfilled their gross income plans, many kolkhozes even exceeded somewhat their planned wage funds. This same situation also occurred at many sovkhozes.

The additional income received from raised purchase prices and price mark-ups must be used mainly for expanding production. Checks have shown that on many farms the growth in wages and in awards issued from material incentive funds exceeds the growth in labor productivity. Moreover, these funds are being expended apart from any consideration of the final work results. Consequently, the non-payments to Gosbank, suppliers and the budget are increasing.

In the case of additional net income, especially during highly productive years, it is recommended that the kolkhozes carry out additional withholdings for adding to the fixed and working indivisible capital. A reliable base will thus be created for ensuring expanded reproduction on the basis of internal resources and they will be released from accumulated debts associated with deferred bank loans (formed as a result of a shortage of products during non-productive years and for other reasons), which replace temporarily the internal resources expended by the farms.

The observance by the farms of economically sound proportions in the distribution of income obtained into the funds for savings and consumption and an increase in wages as labor productivity increases are of exceptional importance for strengthening their economies and finances and for ensuring the timely reimbursement of credit.

In this regard, attention is drawn to the recommendation for changing the existing system for evaluating the production costs for kolkhoz and sovkhoz output carried over to the following year. As is known, non-fulfillment of

the plan for output production in agriculture as a rule leads to an increase in production costs and a reduction in income.

Thus, in 1984 sovkhozes of USSR Minselkhoz /Ministry of Agriculture/ experienced a considerable increase in the production costs (compared to the planned costs) for output carried over to the following year, an increase which was transferred to the planned production costs for next year's output and which in the structure of overall expenditures was covered by bank credit. This actually led to an artificial inflation of the profit earned during the current agricultural cycle. This practice of evaluating carry-over output is also being employed at kolkhozes. The practice should be examined and that portion of the increase in planned production costs which falls on the internally produced output carried over to the following year should be applied to the results for the given year, without increasing artificially the output production costs for the next agricultural year (of the cycle). This conforms to the principles of genuine cost accounting.

The institutes of Gosbank, in association with the financial organs and agro-industrial associations, are carrying out the necessary organizational and control work required for strengthening financial, payment and contractual discipline on the farms. However, there are still a large number of farms that are tolerating losses and there is a considerable amount of mutual indebtedness, non-payments to Gosbank for loans and overexpenditures in the area of wages. These negative phenomena are still being eliminated only slowly.

As is known, a considerable amount of differentiation in income is taking place at the kolkhozes and sovkhozes; farms which operate under good natural conditions with fertile land have additional income, while at the same time there are other farms, and there are a considerable number of them, the income of which is not sufficient for covering their production expenses. In order to smooth out the profitability, taking into account the production conditions, it appears to be advisable to employ on an extensive scale a differentiation of purchase prices by individual farms, taking into account an evaluation of the quality of the land and other objectively changing production conditions and also to examine them periodically. In order to strengthen the economy of the agrarian sector, it is also considered advisable to use a portion of the additional income of farms for placing centralized funds for the regulation of working capital at the disposal of the APK /agroindustrial complex/. These funds could be used for providing reimbursement and in some instances non-reimbursement assistance to individual APK participants.

In conformity with the tasks concerned with developing the economic activities of the APK and its subordinate farms, an increase is taking place in the role played by credit in stimulating economic initiative and enterprise in the area of technical re-equipping, modernization, the introduction of scientific achievements, improvements in production, procurements, processing, storage and the sale of products, logistical supply, construction (using both the contractual and economic methods) and also in the social development of the rural areas.

Based upon production-financial plans that are mutually coordinated among the APK participants and balanced and reinforced by contracts by the parties involved, it becomes possible for the bank to determine the annual prospects

with regard to the amounts and use to be made of credit and, during fulfillment of the plans, to carry out, when necessary in the overall interest of production development, a redistribution of it among the participants while observing the principles involved in the extension of credit.

Bank credit plays a great role in carrying out the Food Program. Credit investments for seasonal production expenditures, for supplies of commodity-material values, raw materials and finished products and for other purposes (including long-term credit) within the agroindustrial complex system increased from 159 billion rubles on 1 January 1984 to 172 billion rubles on 1 January 1985 and they constitute more than one half of the credit investments of Gosbank in the country's national economy. At the beginning of 1985, credit investments in fixed capital of the agroindustrial complex (for the construction, modernization, expansion and technical re-equipping of poultry factories, livestock complexes and other production installations) amounted to 68 billion rubles, including for kolkhozes -- 45 billion rubles, for inter-farm enterprises and organizations -- 6.6 billion rubles and for sovkhozes -- 9.8 billion rubles.

With the participation of bank credit, such specialized branches as farming, livestock husbandry, rural construction, land reclamation and water management, agricultural chemistry, agricultural equipment, forestry, subsidiary farms and also private horticulture and gardening have developed successfully during the current five-year plan. Well organized apartment dwellings, socio-cultural and domestic installations and intra-farm hard surface roads have been built in the rural areas with the participation of credit. Measures are being carried out successfully aimed at solving the key problem in agriculture -- achieving steady increases in the production of grain, meat and milk, so as to be able to satisfy fully the country's requirements for these products.

Further improvements are required in the credit relationships of the bank with agroindustrial associations and their participants and also in the accounting system and in exercising control over the ruble. This applies in particular to the USSR Goskomselkhoztekhnika system, in the work of which there are still many shortcomings, for example in the quality of services and in the repair of tractors, combines and other equipment; the orders of kolkhozes and sovkhozes and their financial potential are not always being taken into account in logistical supply. Quite often the volumes called for in the plans for delivering machines and equipment to agriculture were not supported by appropriate sources for many millions of rubles worth of financing and this led to growth in mutual indebtedness and to the use of bank penalties.

Considerable above-norm supplies of goods (more than 20 percent of the norm) are accumulating in the storehouses of Selkhoztekhnika and this is resulting in a freezing of these assets and in an increase in overdue indebtedness with regard to Gosbank loans. This is occurring in particular in the Uzbek SSR, Ukrainian SSR and in the Georgian SSR. Under these conditions, the institutes of Gosbank must investigate more thoroughly the economics and finances of this system and promote improvements in its work through more efficient control over the ruble.

Improvements in credit relationships with branches of the APK must be developed based upon a strict limitation being placed upon internal and borrowed

resources, upon the use of a differentiated approach depending upon support for the kolkhozes, sovkhozes and other APK participants in the form of internal resources in keeping with the norms, upon providing protection for these resources and upon the profitability level. The role played by current accounting must be raised. Thus, for farms which are operating well, which have internal resources in the amount of 50 or more percent at their disposal and which have a profitability of not less than 25-30 percent (determined according to the last annual report and controlled on the basis of current accounting), credit can be extended for seasonal production expenses, for payments for commodity-material values and for other current farm requirements called for in the plan, from one loan account according to the totality of objects, that is, on a more favorable basis, with the repayment of credit based upon the plan in periods coordinated by the bank.

Farms which have internal working capital in an amount less than 50 percent, but not lower than the norm, and which experience temporary difficulties, should ideally be presented with credit for production expenditures within the framework of a resource shortage during certain periods (quarters) of the year, determined in accordance with the quarterly production-financial plan and report. The repayment of credit by such farms must be carried out from current accounting on a priority basis once the period which was coordinated with the bank arrives.

The bank does not extend credit to farms which operate at a loss and which have a non-liquid balance. The financial status of such farms must be examined by the agroindustrial association and specific measures must be defined for restoring the internal working capital to the norm and ensuring self-sustaining work for the farms by increasing production, reducing expenditures, differentiating purchase prices and the mark-ups for such prices, furnishing assistance from the fund for regulating working capital created within the APK and other measures.

During the period devoted to preparing for the harvest, credit for individual urgent expenses should be extended to such farms when an annual deficit occurs in their resources, determined in accordance with the balance and production-financial plan and with a guarantee by the APK that the planned profit will be obtained and the internal working capital will be restored to the norm upon the completion of the agricultural cycle.

Long-term credits for capital investments should be presented to kolkhozes, sovkhozes and other APK participants, upon the condition that the expenses will be reimbursed, with recovery taking place not later than the period normally established in accordance with the annual plans.

In the interest of strengthening contractual discipline, computations with suppliers, both external ones and association participants, should be carried out for the actual products accepted according to quantity and quality, that is, acceptance of the goods should be assured. This will improve and perhaps even accelerate the computations between the supplier and the purchaser and it will raise their mutual responsibility for the timely delivery of products and accounts.

Withholdings from net income for the material incentive funds of kolkhozes should be carried out separately after the claims for the budget, bank and suppliers have been satisfied.

The institutes of Gosbank, in studying the economic and financial status of kolkhozes, sovkhozes, organizations of Minplodoovoshchkhoz and Soyuzselkhoz-tekhnika and other enterprises belonging to agroindustrial associations, must participate actively in the work of these association when they examine the production-financial plans and reports of farms and they must find unused reserves for increasing production, reducing expenditures, eliminating waste and losses, raising labor productivity and the quality of work, achieving economies, strengthening profitability and the financial base and ensuring the timely recovery of credit and the carrying out of computations.

With regard to improving the economic mechanism within the agroindustrial complex system, importance is attached to the introduction of genuine cost accounting in each production sector, team, brigade, farm and working position and to observance of the expenditure norms called for in the planning calculations for live and materialized labor per unit of output and the planned production cost for it on the whole.

The effectiveness of control by the APK and also the bank over the economic-financial activities of enterprises and organizations of the agroindustrial complex must be raised and the system for improving control over the expenditure of wage funds and funds for bonuses and awards must be improved. Here we have in mind agricultural wages being paid on the basis of final results, with the labor contribution of the workers being taken into account and with emphasis on the economic law which calls for growth in labor productivity to exceed the growth in wages.

As noted during the April Plenum of the CPSU Central Committee, "The task is now one of developing specific and effective measures for ridding the distribution mechanism of wage leveling and unearned income and ensuring a direct dependence of the material status of each worker and each collective upon the results of their labor." This means that an increase will be realized if more products are produced and that a bonus will be paid out of the material incentive fund, as a proportion of the profit created as a result of a reduction in expenditures, for having lowered production costs and improved the quality of the product.

When exercising control over the expenditure of funds for wages, work should not be limited to merely composing a planned and actual fund, computed based upon the norms for growth in labor productivity and in the payments for it. A component part of control must be a qualitative check upon the results of labor. Enterprises which produce low quality products and which tolerate waste and mismanagement, non-fulfillment of contracts, delays in construction and in the introduction of new equipment and other violations of the rules for management must be deprived of the right to expend material incentive funds and a corresponding portion of the wages relating to poorly performed work must be viewed as an overexpenditure of funds. The work of such enterprises must be subjected to audits and inspections. The institutes of Gosbank must report the

shortcomings in the work of these enterprises to the agroindustrial associations and organs of people's control and they must coordinate the control work with the organs of people's control, financial organs, the TsSU /Central Statistical Administration/ and Stroybank /All-Union Bank for the Financing of Capital Investments/.

A dispersion of resources among numerous installations is often tolerated in construction, new installations are included in the construction plan while delays are taking place in the construction of objects which were started earlier and quite often unfinished construction increases in the absence of planning-estimates documentation and contractual agreements. Installations are being placed in operation with imperfections still remaining and following poor quality work. Nor have instances of inflated estimates and inflated costs for the carrying out of work been eliminated. During 1984 alone, checks conducted by Gosbank uncovered such inflated costs and other violations of estimate and financial discipline in the amount of 200 million rubles at APK construction projects financed by it. Other violations of planning, contractual and financial-accounting discipline are also being tolerated and for this reason 16 million rubles worth of fines were levied.

Upon uncovering such shortcomings during the course of financial and credit relationships, the institutes of Gosbank must undertake appropriate corrective measures on an urgent basis and ensure strict observance of state planning-financial discipline by the economic organs.

It appears that under the new conditions for management the active instructional statutes of Gosbank concerning work with APK branches should be viewed as a means for improving the all-round mechanism for credit and accounting relationships (including the financing of capital investments), both with its participants and with external organizations, and also with the individual peculiarities concerned with organizing the finances and crediting of kolkhozes, sovkhozes, inter-farm enterprises, enterprises of Minplodoovoshchkhoz /Ministry of the Fruit and Vegetable Industry/, Minpishcheprom /Ministry of the Poultry Industry/ and other branches being reflected in them.

The rights and obligations of the APK must be reflected in the new rules for APK financing, crediting and accounting: present trend in capital investments for the technical re-equipping and modernization of existing enterprises, improvements in technological processes based upon the introduction of highly productive equipment, modern scientific and engineering achievements, the formation of working, reserve and other funds, redistribution of budgetary funds during fulfillment of the plan and also bank credits and other resources for production and capital investments. It is considered advisable in this regard to extend to the APK greater rights in the redistribution, when necessary, of the capital investment volumes among participants, based upon the existing conditions for the production, procurement and processing of agricultural products. This will make it possible to overcome effectively the possible disproportions which are justified by the course of economic activity.

Deserving of attention also is the creation and placing at the disposal of the APK of centralized financial reserves, by means of withholdings from income and the payments by farms -- participants of associations for furnishing

financial assistance to farms which have not accumulated internal working capital in keeping with the established norms and also for financing capital expenditures over and above the capital investment volume established in the plan, those associated with improving and developing the logistical base of the APK, carried out as a rule using internal resources.

Cooperation in the work of APK kolkhozes, sovkhozes, inter-farm enterprises and procurement, processing, supply, construction and other enterprises and organizations makes it possible and necessary to carry out, in their mutual accounts, periodic credit operations and other progressive forms of financial and accounting relationships in keeping with the new conditions, which accelerate a money turnover and which stimulate more complete utilization of the internal reserves embodied in agroindustrial integration.

The workers of Gosbank, similar to all Soviet people, while making preparations for the 27th party congress and carrying out further improvements in their work, plan to promote actively, through the use of money and credit, development of the work of the agroindustrial complex and fulfillment of the Food Program.

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AGRO-ECONOMICS AND ORGANIZATION

BELORUSSIAN OFFICIAL ON PRODUCTION COST, PRICING

Minsk SELSKAYA GAZETA in Russian 18 Jan 86 p 2

/Article by N. Shendarev, deputy chairman of the State Price Committee of the BSSR: "Price, Production Cost, Quality..."/

/Text/ Purchase prices serve as an important lever for stimulating growth in the production of agricultural products. The considerable increases in these prices, implemented in 1983 in conformity with decisions handed down during the May (1982) Plenum of the CPSU Central Committee, and the introduction of markups for low profitability and unprofitable farms have radically normalized the kolkhoz and sovkhoz economies and created favorable conditions for work to be carried out on the basis of self-repayment.

At the same time, analysis reveals that financial measures carried out in the past were by no means accompanied by an appropriate redistribution of the limits for contractual work or of the funds for centrally distributed material resources, in favor of economically backward farms. In view of the fact that such measures ensure to a large degree the significance of measures aimed at equalizing the profitability of kolkhozes and sovkhozes, they should be examined in the plan for economic and social development during the 12th Five-Year Plan. In this regard, in Section VI of the draft Basic Directions entitled "Development of the Agroindustrial Complex and Implementation of the Food Program," the statement "primarily low profitability and unprofitable kolkhozes and sovkhozes" and subsequently throughout the text should be added after the following words in Paragraph 5 "Consistently strengthen the logistical base of the agroindustrial complex."

Taking into account the fact that an increase in the quality of output is equivalent to raising labor productivity and that it signifies in the final analysis a savings in public time, elements for materially stimulating the production of high quality products have been included in the purchase prices. For example, a ton of live weight of cattle that is in a high state of nourishment earns a payment for the farms of 1,920 rubles, compared to only 960 rubles for the same weight of an emaciated (non-standard) animal, a ton of 1st grade milk -- 315 rubles and for low quality milk -- 230 rubles. However the available opportunities for increasing the coefficient of use of the price list, that is, its upper limit, are not being mobilized adequately in livestock husbandry. In essence, this applies to farm products to the same degree.

Many kolkhozes and sovkhozes throughout the republic are sustaining large losses in their overall earnings from the sale of products according to purchase prices, owing to the fact that sub-standard and quite often low quality flax products, potatoes, vegetables, fruit, sugar beets and others are being sold to the state. Thus, in 1983-1984, approximately 6 percent of all potatoes sold were considered to be of sub-standard quality and vegetables -- 7 percent.

In the final analysis, the degree of difference between the actual sales price and the price list is a distinct indicator of the use by kolkhozes and sovkhozes of the opportunities available for raising the profitability of agricultural production, as embodied by the state in the price list for a particular agricultural product and in the price reductions and markups which supplement it.

Agricultural enterprises and the appropriate RAPO /rayon agroindustrial association/ services must devote more attention to those problems concerned with the practical use of purchase price lists, which can be of assistance in determining the degree of their effectiveness and undertaking effective and timely measures aimed at improving it to the maximum possible degree. In turn, this will intensify considerably the stimulating role played by the purchase prices in increasing the production of agricultural products and at the same time it will make it possible to make a worthy contribution towards implementing the country's Food Program. Thus, in the mentioned section, I recommend that the statement "and of the price possibilities of the purchase price list" be inserted immediately following the words "To raise considerably the effectiveness of use of resources allocated for the agroindustrial complex."

In my opinion, there is still one other important question.

Today, paramount importance is being attached to lowering production costs and to employing scientific-technical progress as a factor for reducing costs. The production cost for a unit of output will be low if production and labor are organized in a better manner, if more intelligent and efficient use is made of the land, machines, livestock and material values and if high agricultural crop yields and high livestock productivity become the rule. In addition, planning, technological, financial and executive discipline must be strengthened.

This is why a reduction in production costs is considered to be the chief source for raising the profitability of farms and, on this basis, intensifying the role played by economic stimuli in the development of agricultural production. Nor is this a new truth. But it bears mentioning once again by adding in Paragraph 4 of Section VI the statement "Development of the agroindustrial complex and implementation of the Food Program" immediately following the words: "To improve quality" the words -- "To lower production costs" and subsequently throughout the text.

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AGRO-ECONOMICS AND ORGANIZATION

LENINGRAD OBLAST AGROPROM RESTRUCTURING DETAILED

Leningrad LENINGRADSKAYA PRAVDA in Russian 22 Feb 86 pp 1-2

/Interview with V.I. Nikulenko, deputy chairman of the Leningrad Oblast Executive Committee and chairman of the oblast agroindustrial committee by M. Fokin; date and place not specified/

> /Excerpts/ In conformity with the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "On Further Improving the Administration of the Agroindustrial Complex," the creation of new organs of state agricultural administration is nearing completion in the oblast.
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> Our correspondent, M. Fokin, met with the chairman of the oblast agroindustrial committee and 1st deputy chairman of the Leningrad Oblast Executive Committee V.I. Nikulenko and asked him to answer a number of questions.

/Question/ Vladimir Ivanovich, what is the essence and importance of the reorganization taking place at the present time in the administration of agricultural production?

/Answer/ This reorganization could not be postponed. Indeed, it is completely obvious that the investment of large funds in agricultural development does not always produce the desired return. This derives mainly from the absence of a unified program of action among the various organizations responsible for solving the problems concerned with intensifying agricultural production and accelerating scientific-technical progress.

The essence of the reorganization lies in the fact that a single system has now been created for administering the agroindustrial complex, a system tasked with solving all of the basic and fundamental problems concerned with carrying out the Food Program. The tasks of the Agroprom /agricultural industry/ have been clearly defined. They include intensification, stable growth in the volumes of agricultural production and combining the efforts of all agricultural-related branches for the purpose of obtaining the highest final results.

/Question/ How does the oblast's agroindustrial complex appear today?

/Answer/ The structure of the Lenoblagroprom /Leningrad Oblast Agricultural Industry/ includes 12 rayon specialized production associations (RAPO's), 12 specialized production associations, two trusts, planning organizations, repair-technical enterprises with supply bases, the Sevzapgiprozem Institute, a zonal normative-research station and an information-computer center. In all, this represents more than 370 enterprises and organizations, the fixed productive capital of which amounts to 4.2 billion rubles.

The staff of Lenoblagroprom was formed based upon the agricultural administration, Oblselkhoztekhnika and the Oblast Inspection for Purchases and the Quality of Agricultural Products. A single planning-economic service was created, a service for agronomic, zootechnical, mechanization and electrification and transport support, logistical supply, capital construction and others. In the process, the number of administrative workers decreased by 25 percent. Corresponding changes took place at the rayon level of administration.

/Question/ But a question immediately springs to mind -- together with the creation of rayon agroindustrial associations within the oblast, a reduction took place in the number of sovkhoz production associations. What brought this about?

/Answer/ This is an important question. Actually, it was in Leningrad Oblast that the principles of territorial-branch administration of agriculture were developed and implemented in the country for the very first time and this was predetermined to a large degree by the high rates and effectiveness associated with the development of the principal branches.

During the course of improving the administration of the agroindustrial complex, consideration was given to the experience already accumulated in the oblast in the effective operation of sovkhoz production associations, the organs of administration for specialized production. Emphasis is placed upon the word specialized. Such associations in which a high level of specialization and concentration has been achieved should ideally be retained.

Rayon agroindustrial associations were created in rayons where the farms specialize mainly in the production of milk and potaotes. In addition to sovkhozes, their structure includes repair-technical enterprises with supply bases (remtekhpromsnabsbyt), for agrochemical services (agropromkhimiya), rayvetlechebnitsy /rayon veterinary hospitals/ and other rayon agricultural organizations.

/Question/ How will the specialized associations obtain all of the types of services mentioned above?

/Answer/ I will begin with logistical support. It will be carried out through supply bases of Agrosnab and by repair-technical enterprises which are directly subordinate to Oblagroprom. Actually, the specialized associations are located in five suburban regions, which have four large repair-technical enterprises with supply bases and a similar number of production associations for agrochemical services at their disposal. Here there is a developed network of stations for combating diseases of agricultural animals. In addition, these associations will receive a considerable amount of assistance from the central bases of Agroprom.

The economic relationships among enterprises providing repair-technical, material and agrochemical support will be based upon contractual conditions, in like manner as those for farms included in the RAPO /rayon agroindustrial association/. It should be emphasized in particular that priority importance is being attached to having the parties involved strengthen contractual discipline. The chief goal of all participants in the agroindustrial complex is that of achieving high final results, realizing maximum increases in the production of milk, meat, eggs, potatoes and vegetables, lowering their production costs and raising the profitability of all branches.

/Question/ Vladimir Ivanovich, neither an increase nor decrease has been noted in the number of machines, livestock or land as a result of the oblast's agricultural reorganization. In other words, the reorganization has not affected the material base. What additional levers have been placed in operation and what additional opportunities will be utilized for intensifying agricultural production?

/Answer/ Today all of the funds and resources are concentrated in the same hands and hence the plans for purchasing agricultural products, the volumes of capital investments, the profit plans, the wage funds and the deliveries of logistical resources can be distributed among all of the subunits on a differentiated basis. The rayon agroindustrial associations have been authorized to determine and utilize the limits and funds according to their own discretion, with consideration undoubtedly being given to achieving a maximum return.

/Question/ At the present time, much is being written concerning the need for granting the sovkhozes greater independence and terminating petty support and constant interference in the work of rayon and oblast organizations. Is this not so?

/Answer/ The administrative reorganization is directed towards solving precisely this problem. The administrative apparatus has now been decreased in size. The amount of petty support must also be reduced. The new structure and the new rules have opened up an expanse for energetic and industrious work by all elements of Agroprom, particularly the farms.

The plans call for a reduction in the number of planning indicators being made available to the farms. The purchase plans will be established taking into account the status and level of utilization of the production-economic potential: land, power-worker ratio and human resources, such that the sovkhozes will have tense and balanced tasks.

The farm leaders are being provided with greater rights with regard to improving staff administration and selecting the forms for labor organization and for stimulating labor. In the process, special reliance is being placed upon the introduction of internal cost accounting and the use of collective contracts and the point system for evaluating the work of specialists.

/Question/ As you have already stated, the reorganization in Agroprom is directed mainly towards achieving further production intensification. In the absence of an acceleration in scientific-technical progress, it will be

impossible to solve the large-scale problems associated with the socio-economic transformation of the rural areas. On what principles will the relationships of Lenoblagroprom with the Leningrad agricultural science be based and what is the range of problems requiring immediate scientific solutions?

/Answer/ In Leningrad and within the oblast there are 12 scientific-research organizations working on agricultural problems. There are more than 4,000 individuals working at these facilities, including more than 100 doctors and approximately 1,500 candidates of science. The number of scientific works being recommended for introduction into operations is constantly increasing. However, by no means do all of them conform to the level for the new requirements. It can be stated quite frankly that many commonplace and trite procedures are being employed in these matters, especially in farming. Our goal here is infinitely clear -- to present the farms with a broad selection of scientifically sound systems for organizing production. In the process, the chief effect must be achieved: steady growth in agricultural output.

At the present time, scientific support for and the coordination of studies within the agroindustrial complex is entrusted to the VASKhNIL /All-Union Academy of Agricultural Sciences imeni V.I. Lenin/ department for the nonchernozem zone of the RSFSR. A scientific-technical council for Lenoblagroprom is being created simultaneously. It is believed that joint efforts by these organizations will make it possible to eliminate those barriers which have inhibited the accelerated introduction of scientific achievements into production operations.

/Question/ Is it not true that any reorganization in industry or agriculture begins with the reorganization of people?

/Answer/ I would like to emphasize one aspect: changes in agriculture do not constitute a regular campaign. Prior to commencing them, the CPSU Central Committee and the USSR Council of Ministers repeatedly consulted with the republic, oblast and rayon organizations and with the leaders of sovkhozes and industrial enterprises. The creation of a competent USSR Gosagroprom system is a logical extension of the reorganization begun following the May (1982) and April (1985) plenums of the CPSU Central Committee. Thus the "personnel problem" was forecast as one of the first.

The chief task consisted of rescuing the personnel from departmentalization. Workers assigned to head up the work must be capable of thinking in terms of the latest developments, individuals who in both words and actions are able to manage the work in keeping with the times.

Certainly, it is still too early to draw any specific conclusions. But it is believed that we have solved this problem. Competent people capable of thinking out and solving all of the principal problems have been assigned to head up the RAPO's and specialized subunits.

/Question/ The goal of the reorganization is intensification and raising the efficiency of agricultural production. What are the principal points for applying the resources of the new organs of administration?

/Answer/ We have accomplished a great deal. The Lenagroprom system developed on healthy and well tended soil. The plans of the 11th Five-Year Plan for the sale of all types of field crop husbandry and livestock husbandry products to the state were fulfilled successfully. At the same time, the results of the past five-year plan clearly underscore the existence of unused reserves. Last year, the oblast's average milk yield per cow was 3,552 kilograms. However, the milk yields at one fourth of the sovkhozes do not exceed 3,000 kilograms.

/Question/ And finally, what are the priority tasks of the Agroprom and what must be accomplished this year?

/Answer/ The collectives of Agroprom presently have at their disposal a strong logistical base and the potential needed for accelerating an increase in the production of goods. During the reorganization, the chief task will consist of not allowing a reduction to take place in the work rates or in the quality of the work being performed by the agricultural enterprises and to achieve a high degree of labor and creative enthusiasm in each collective.

During the first year of the new five-year plan, the agroindustrial complex for the oblast must supply the state with 20,000 tons of grain, almost 600,000 tons of potatoes and vegetables, 912,000 tons of milk, 216,000 tons of meat and more than one and a half billion eggs. The plans call for a large program of production construction and land reclamation. This year we must utilize more than 400 million rubles worth of state capital investments. Importance is being attached to ensuring that each ruble invested in a farm produces an immediate and substantial return in the form of products delivered to the dining tables of residents of Leningrad and the oblast.

7026
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AGRO-ECONOMICS AND ORGANIZATION

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BRONSHTEYN ON RESTRUCTURING OF ESTONIAN AGROPROM

Moscow EKONOMIKA SELSKOGO KHOZYAYSTVA in Russian No 2, Feb 86 pp 16-20

[Article by M. Bronshteyn, corresponding member of the Estonian SSR Academy of Sciences: "Toward Organizational and Economic Integrity in APK Management"]

> [Text] To implement an overall improvement in management and to better utilize the advantages and capabilities of the socialist planning system.
>
> From the draft of the Basic Directions in the Economic and Social Development of the USSR for 1986-1990 and for the Period Until the Year 2000.

The draft of the Basic Directions in the Economic and Social Development of the USSR for 1986-1990 and for the Period Until the Year 2000 envisages the implementation of the necessary organizational and economic measures so that the agroindustrial complex may be managed, planned and financed as a single whole at all levels. Integrated management of national economic and territorial APK makes it possible to ensure the necessary balance in the development of producing, servicing, and processing spheres and an intersectorial and intereconomic maneuver of resources for pulling up lagging links and for rapidly introducing advanced technical, technological, and organizational solutions. After all, under present conditions scientific and technical progress cannot be implemented only within a narrow sectorial framework on the basis of departmental criteria of efficiency. The most efficient solutions most often are possible at an intersectorial juncture, encompassing the entire complex--production, sale, storage, and processing of agricultural products--with an orientation toward a minimum of expenditures of resources for the production of a unit of the end product of APK.

In the Estonian SSR the transition to integrated APK management began in 1975, when the first rayon agroindustrial association was established (in Vilyandiskiy Rayon). In 1981 such management bodies operated in all the republic's rayons and in 1983 the republic agroindustrial association (Agroprom ESSR), which included the republic's former Ministry of Agriculture and the State Committee for the Supply of Production Equipment for Agriculture, as well as the ESSR State Committee for Land Reclamation and Water Resources, was established.

Experience in the functioning of first agroindustrial associations at rayon and republic levels convincingly demonstrated the efficiency of organizational integrity in territorial APK. It was no accident that the growth of output in first RAPO exceeded the average republic growth by 20 to 30 percent and the degree of utilization within this framework of resource potentials (land, supplies and manpower) was higher than the average republic level respectively. In 2 years of the Agroprom's operation the Estonian SSR attained an increase of 11.2 percent in the production of agricultural products and a rise in its profitability level, which reached almost 40 percent during that time. Not a single unprofitable farm remained in the republic.

However, we did not obtain even one-half of the possible effect from the integrity of management. Calculations showed that, if all ministries and departments forming part of the republic's APK had been fully integrated in the Agroprom ESSR and relations with the Union body would have been built on a block basis--mutual deliveries of products and payments according to the established standards--it would have been possible to raise the efficiency of utilization of the APK's total resource potential by about 30 to 40 percent and to cut down the managerial staff to at least one-half or one-third.

Under the previously formed system of planning and the allocation of funds (the USSR Gosplan--Union ministries and departments--republic ministries and departments) not only the appropriate structures had to be retained at the republic level (otherwise channels of material and technical supply would have been cut off), but often inefficient decisions on the development of the system of processing and transportation of agricultural products resulting from departmental interests and criteria had to be adopted. Therefore, the transition to a more integrated management of the republic's APK depended on appropriate changes at the Union level.

Now with the formation of the Gosagroprom SSSR as the central body of state management of the agroindustrial complex favorable economic conditions for an efficient development on a planning and cost accounting basis of all APK sectors and economic links throughout the country have been created. In our opinion, additional measures are needed to solve such important problems as:

raising the economic responsibility of territorial and economic links for an increase in the efficiency of utilization of resource potentials (land, supplies and manpower) and a reduction in costs per unit of output;

eliminating the dangerous tendency toward leveling, which boils down to the coverage of excessive expenditures through an economic "punishment" of efficiently operating economic links;

ensuring the readjustment of economic levers and incentives within the framework of republic (oblast) APK with due regard for specific natural and economic conditions.

It should be noted that all these problems are closely interrelated. The continuing tendency toward covering insufficiently efficient solutions both in

industrial sectors and in agriculture as a whole with prices evokes concern. Ultimately, this tendency leads to an increase in the production cost of agricultural products (it doubled in the last 15 to 20 years) and to a general rise in prices. The draft of the Basic Directions in the Economic and Social Development of the USSR for 1986-1990 and for the Period Until the Year 2000 envisages overcoming this extremely unfavorable tendency and reducing the production cost of industrial and agricultural products. We see the solution of this problem in removing the monopoly of spheres servicing agriculture, expanding the possibilities of choosing the supplier and the economic partner, and placing stricter requirements on the basic parameters of the quality of output. In agriculture itself it is necessary to give up the compensation for any overstated costs, which is practised when differentiated purchase prices, including increases in such prices for low-profitable and unprofitable farms, are set, as well as writing off debts. Society can and should economically compensate for objectively worse natural and economic conditions, but not for backward methods and forms of management. On the basis of this the entire system of economic relations, including planning and the determination of the duties of farms with respect to deliveries of products and payments, should be built in accordance with the decisions of the May (1982) Plenum of the CPSU Central Committee on the basis of an evaluation of the resource potentials (land, supplies and manpower) of territorial and economic links with a provision of incentives for their more efficient utilization. Experience in the application of an overall evaluation of resource potentials for an increase in the degree of the economic responsibility of farms for their efficient utilization has been accumulated in territorial agroindustrial associations in the Estonian SSR.

A standard-unit-income, that is, net income per hectare of cultivated land, which a farm or a rayon should obtain with a specific quality of land and with a specific provision with productive capital and manpower and at a socially normal level of their utilization, was determined for every farm and rayon in the republic. During the evaluation of resources differentiated standards of deductions by farms of capital into centralized RAPO funds were determined. A comparison of actual and standard indicators of income give an objective basis for an evaluation of the levels of management and the efficiency of utilization of resource potentials.[1]

It is extremely important to correctly determine the criteria and indicators of efficiency, on the basis of which we evaluate and stimulate the production activity of territorial and economic APK links. The criterion of efficiency meeting the tasks set in the draft of the new edition of the CPSU Program lies in satisfying society's needs with the lowest expenditures of all types of resources per unit of output. The problem lies in the selection of indicators adequate to the criterion of efficiency.

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1. Differences in groups of farms reach 400 to 500 percent. Often on "advanced" farms in terms of ordinary indicators (fulfillment of plans and rates of growth) the level of utilization of resource potentials is below the standard level.

Until recently indicators describing the fulfillment of state purchase plans and rates of growth of the production of agricultural products have been dominant. Farms, which have overfulfilled purchase plans and during the 11th Five-Year Plan have exceeded the average annual levels of purchases of agricultural products during the preceding 5 years, have also obtained a significant (up to 50 percent) rise in the purchase price. There is no doubt that the fulfillment of state purchase plans is a mandatory condition for any positive evaluation of the results of economic activity. Stable rates of growth are also necessary. However, the one-sided direction of the incentive system toward these indicators also creates serious problems. There is interest in obtaining understated plans and in getting hold of scarce resources at any price, because at a relatively high level of production further growth requires especially big expenditures. In Estonia during the 11th Five-Year Plan the per-capita production of meat totaled about 140 kg and of milk, 800 kg, while the average annual milk yield per cow was 4,000 kg. It is both more difficult and more expensive to rise from this level. Therefore, with the retention of the system of increases in purchase prices for exceeding the average annual levels of purchases of agricultural products during the 12th Five-Year Plan, as compared with the 11th Five-Year Plan, the republic will lose 60 to 70 million rubles annually. In essence, the existing incentive system "punishes" the republic economically for a relatively high level of production and a relatively better utilization of the resource potential.[2]

It is not a question of the "protection" of the interests of an individual republic. The problem is more complex--at what price do we want to obtain an increase in output and what result should be considered efficient. Ultimately, our possibilities of accelerating social and economic development are determined by the efficiency of utilization of the accumulated resource potential. Therefore, output per unit of the combined agroeconomic resource potential, which includes land, supplies and manpower, with an unconditional fulfillment of state assignments for deliveries of end products to Union and republic stocks should become the main factor in the evaluation and stimulation of economic activity. Evaluating the results of economic activity of republics and oblasts, it is also important to take into consideration the level of the population's food provision. At the same time, proceeds from the Union food stock should also be built on a firm standard basis with due regard for the evaluations of agroeconomic and industrial potentials of a given region. The economic regulation of APK at a Union level does not eliminate the need for a certain readjustment of economic levers and incentives in localities with due regard for specific natural and economic conditions. Such a readjustment is possible if centralized economic regulation funds are formed within the framework of the republic (oblast) APK. These funds will be the sources of establishment of the material base for the solution by economic methods of a number of important problems connected with the further rise in the efficiency of APK functioning at a regional level.

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2. With relatively small expenditures per unit of output in the Estonian SSR, as compared with other republics in Soviet Baltic states (with the same evaluation of the resource potential), there is the lowest level of increases in purchase prices envisaged for low-profitable and unprofitable farms.

We have in mind primarily the task of acceleration of scientific and technical progress--development and a rapid introduction in the spheres of production, storage and processing of agricultural products of fundamentally new and highly efficient technical and technological solutions with due regard for specific conditions. It cannot be accomplished only on the basis of a narrow departmental approach with an orientation toward sectorial, not final, criteria of efficiency. Thus, an excessive concentration of production, for example, in the republic's meat and dairy industry sectors led to excessive expenditures and losses during the transportation of products, to an insufficient utilization of valuable waste and so forth. The proposal by the Khaapsaluskiy RAPO on the establishment of a rayon complex unifying "under one roof" the processing of meat and milk and the production of mixed feed, that is, waste-free production with minimization of expenditures on construction and the transportation of products and with a more efficient utilization of manpower, is interesting and promising in this respect. Efficient approaches (advanced foreign experience also attests to this) are also possible with the solution of the extremely acute problem of changing over to the intensive technology of growing, preserving, and processing potatoes. Other examples can also be cited.

Now in accordance with the decree of the CPSU Central Committee and the USSR Council of Ministers "On the Further Improvement in the Management of the Agroindustrial Complex" the Agroprom ESSR has been transformed into the Estonian SSR State Agroindustrial Committee (Gosagroprom ESSR). The structure of RAPO is also being reorganized. For an acceleration of scientific and technical progress within the framework of the Gosagroprom ESSR it is necessary to establish intersectorial scientific-engineering and introduction centers and to form on a cost accounting basis flexible (for the time of the accomplishment of this task) collectives of developers and introducers with significant material incentives for the most efficient solutions. The experience of a number of socialist countries in partial state financing (subsidizing) of the development and introduction of new technical and technological solutions at an economic level also deserves attention. Usually, these subsidies are given in a differentiated manner (at the rate of 20 to 50 percent of the amount of expenditures) on a competitive basis for the most efficient projects and developments. The establishment of an appropriate specific-purpose fund within the framework of the Gosagroprom ESSR would make it possible to accelerate scientific and technical progress in the republic's APK, which now seems extremely important.

The creation of the most favorable economic conditions for a more efficient placement of agricultural production and a fuller utilization of the republic's natural and economic potential is another task. It is well known that the natural and economic potential of the Estonian SSR meets primarily the development of dairy and beef cattle raising. The structure of natural fodder land, the need for a rise in land fertility through an increase in the application of organic fertilizers, the existing historical experience in farming and so forth correspond to this. However, with the existing ratio of purchase prices the development of hog breeding, basically with purchased feed, is the most profitable for farms. It gives them a profit per unit of total investments, which is three to four times bigger than the profit derived

from dairy and beef cattle raising. With the existing ratio of purchase prices flax raising and potato growing, which require substantial additional expenditures on the production of high-quality products and their preservation, are not sufficiently profitable economically. It is no accident that in these sectors rates of development are relatively low and a deterioration in the quality and big losses of products are allowed. At the same time, the production of flax products and potatoes has to be imposed on farms by administrative methods, disregarding natural and economic conditions, which often are not conducive to this.

It is hardly necessary for Union price formation bodies to work out an optimum ratio of purchase prices for all types of agricultural products for every region in the country with due regard for the entire diversity of its specific conditions. Here it is important that the general level of purchase prices cover socially necessary expenditures and ensure the normal process of reproduction in a given region. With the retention of existing average sales prices (with the inclusion of price increases) for the 12th Five-Year Plan such conditions will also exist in our republic. The possibility for an internal readjustment of the ratio of purchase prices by the method of purchase price reductions for highly profitable types of products and of purchase price increases for low-profitable types of products with the establishment of the appropriate centralized fund for the correction of the ratio of purchase prices is created.

It is also advisable to readjust the price level within the republic as applied to some production resources, primarily mixed feed and mineral fertilizers. The introduction of price increases would contribute to the elimination of the scarcity of a number of resources and would interest farms in a relatively rapid development of their own feed base, an increase in the application of organic fertilizers and so forth. A substantiated and relatively small increase in prices of scarce production resources will not infringe upon the interests of agriculture. This increase assigned to the centralized funds of the Gosagroprom ESSR will be utilized for the establishment of a fund for the stimulation of scientific and technical progress and compensation for relatively worse management conditions.

The problem of economic compensation for objectively worse natural and economic conditions in a number of rayons and farms remains in the republic. Even after the introduction of purchase price increases for unprofitable and low-profitable farms there is a big disparity in their income level resulting from differences in the quality and location of land, equipment with capital and the production and social-general buildup on farms. Thus, according to standard evaluations of resource potentials, at the same level of management the difference in the income level (amount of profit) throughout the republic's rayons with better and worse objective conditions reaches 200 percent and in the same groups of farms, 400 to 500 percent. Within rayons a certain readjustment is made with RAPO funds. However, the most limited possibilities for the establishment of centralized funds are noted in rayons with relatively worse conditions (Vyruskiy, Valgaskiy, Kingiseppskiy and Khaapsaluskiy). For example, in 1984 the Kharyuskiy RAPO assigned 2.8 million rubles to centralized funds and spent 1.8 million rubles. The Khaapsaluskiy RAPO deducted 327,000 rubles into centralized funds and spent 329,000 rubles.

We see the solution of the problem in the establishment of a special compensation (leveling) fund at a republic level, from which rayons and farms with an evaluation of resource potentials below the average republic level would annually obtain, provided they fulfill the plans for the sale of products to the state, firm financial compensations. In essence, this is the same purchase price increase for low-profitable farms, but given on a firm standard basis (compensating for worse objective conditions, not for a low level of management) and more flexibly utilized by the RAPO during the implementation of overall measures for pulling up lagging farms (the experience of the Pyarnuskiy RAPO is very interesting in this respect).

The following can be the sources of formation of the centralized funds of the republic (oblast) APK:

deductions from the profit of agricultural enterprises with an evaluation of the resource potential above the average republic potential;

deductions from the planned or above-plan profit of organizations and enterprises servicing agriculture and processing its products;

sums of all purchase price increases for the growth of output. The amounts of deductions should be limited to the possibilities for a centralized use of profit and the need to strengthen cost accounting on kolkhozes and sovkhozes. According to our calculations, the centralized funds of the Gosagroprom ESSR should total approximately 30 million rubles annually.

The attainment of an organizational integrity is the necessary stage in an increase in the efficiency of functioning of the agroindustrial complex at all levels. However, we will obtain the proper effect from the reorganization of APK management only if economic integrity is attained. It is important to master the entire arsenal of means of centralized economic effect on cost accounting interests, ensuring their single direction. In their totality they should provide economic links, which constantly seek and realize the most efficient solutions, with a tangible material and moral advantage and passive and poorly operating links, with a tangible disadvantage. Of course, with all the clarity of such a formulation of this problem its solution will require time and a serious elaboration of the entire system of economic standards and incentives, including the performance of new experiments.

11439
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AGRICULTURAL MACHINERY AND EQUIPMENT

PROBLEMS WITH SUPPLY, FUNCTIONING OF PRIVATE PLOT ENGINE UNIT

Moscow SELSKAYA ZHIZN in Russian 7 Feb 86 p 3

/Interview with V.G. Shuntova, chief of the Department of Agricultural Implements and Light Mechanization Equipment of the Central Union of Consumer's Societies by Yu. Grachev; date and place not specified/

> /Text/ Since early morning the telephones have been ringing in the Department of Agricultural Implements and Light Mechanization Equipment of Tsentrosoyuz /Central Union of Consumer's Societies/. Inquiries are being made concerning the shipments of motorized units, others are interested in the new prices for miniature mowers and some wish to know how and where they can purchase plows for tilling their private plots. Finally, I addressed a question to the chief of the department V.G. Shuntova.

/Question/ Valentina Goergiyevna, let us assume that I have a private plot and that I wish to purchase a set of machines and implements for use in working the land. Would you recommend that a salesman for a cooperative store provide assistance on the spot?

/Answer/ If I had been asked this question 2-3 years ago, it would have been very difficult for me. At the present time however, the situation with regard to miniature equipment has improved noticeably. We are beginning to receive mass quantities of machines and implements for use on orchard and gardening tracts and on private plots. Compared to 1981 when the machine builders supplied our trade network with only 100 motorized units and 600 mowers, within a period of 3 years the shipments of such equipment have increased considerably and now number in the thousands. Last year, such shipments included 20,000 motorized units of various types, more than 10,000 mowers, a similar quantity of miniature plows, 16,000 gardening carts and several thousand other implements and mechanisms.

/Question/ But you will no doubt agree, Valentina Georgiyevna, that this is still not enough. There is a high demand for light mechanization equipment. Is it not true that there are approximately 40 million private plots in the country and that their number is increasing?

/Answer/ Yes, you are correct. We believe that this represents only the beginning of the mass production of miniature equipment. During the very first

year of the new five-year plan, industry is obligated to double its deliveries of such equipment to stores within our system. Thus today the raypotrebsoyuz's /rayon union of consumer's societies/ are able to offer consumers four models of motorized units: MTZ-05, MB-1, Krot and Super-600. A set of implements for these models is also available for sale, albeit in limited quantities. Actually, the production by the plants of pull-type and tractor-mounted implements is lagging behind the production of the motorized units themselves. A customer can also purchase a motorized KMP-1 hay mower, under production at the Klimovsk Agricultural Machine Plant (Moscow Oblast).

It bears mentioning that all of this equipment and also the miniature machines of rural and municipal skilled craftsmen, as well as the best models of foreign firms can be seen at the Solnechnogorsk exhibit of light mechanization equipment in Moscow Oblast, at the Central Machine Testing Station.

Quite often, reports are published in the press and on television and radio concerning the new models of miniature equipment and this brings forth a flood of letters containing requests for assistance in obtaining such equipment. This situation should be clarified. Such reports quite often amount to nothing more than information on the technical creativity of Soviet people. The models under discussion exist only in individual units and naturally are not being supplied to the trade network. This applies to a report which appeared in the 7 January 1986 issue of SELSKAYA_ZHIZN, concerning a motorized unit which was demonstrated at the_USSR VDNKh /Exhibition of Achievements of the National Economy of the USSR/.

/Question/ Could you not describe in somewhat greater detail each of the machines available for sale and mention the prices being asked for them?

/Answer/ It should be noted immediately that the prices for miniature equipment were lowered commencing 10 January of this year, thus making such items of equipment more accessible to the consumer. For example, the MTZ-05 motorized unit of the Minsk Tractor Plant cost 1,300 rubles without implements and its cost now is 860 rubles. It has proven its worth in the tilling of heavy textured soils, especially tracts used for the growing of potatoes.

Until recently, the MTZ-05 motorized unit was sold mainly at stores in the Belorussian SSR. Today, deliveries of this unit are being carried out to other republics.

The customers are also displaying interest in the MB-1 motorized unit, the production of which has been organized in Leningrad, Perm and Ufa. It is small in both size and capability and it is being made available in the stores complete with cutters. These implements are capable of carrying out four different types of operations out on the tracts. And the price of the motorized unit is fully acceptable following the reduction. Earlier it cost 660 rubles (without implements) and now -- 580 rubles.

The Super-600 motorized unit is under production at the Kutais Miniature Tractor Plant in accordance with an Italian license. It is a fine machine for large-size private plots. It has a reliable motor. But the technology for its mass production was not organized in the proper manner. We are receiving many

complaints regarding the quality of its individual units. In January the price for the motorized unit was lowered by 400 rubles and now it is being sold for 1,100 rubles at stores of consumer cooperation.

The Krot is the cheapest motorized unit which we have available for sale. It is being produced by the Moscow PO imeni V.V. Chernyshev. It costs 275 rubles (earlier, its price was 360 rubles). Naturally, there is a great demand for it. This unit is intended for tilling soil on small tracts. True, the set of implements available for use with it is not very large.

It should be added that we have still not received any complaints concerning this miniature machine. The quality of its production is rather high and it is apparently completely satisfactory as far as the consumers are concerned.

/Question/ Since our discussion has touched upon the quality of miniature equipment, there is probably some need for continuing it. Is this not so?

/Answer/ I believe that it truly makes sense to discuss in detail the quality of the machines and implements to be used on private plots. It is an important problem which is being resolved all too slowly.

For example, let us take the KMP-1 motorized unit. The Klimovsk Agricultural Machine Plant of the Ministry of Machine Building for Livestock Husbandry and Feed Production has been producing it for 5 years. And throughout this entire period it has been supplied to the trade network with numerous defects. The mower has not been completed from a design standpoint and this has been borne out repeatedly by the plant management and by Minzhivmash. It is very heavy -- 90 kilograms. It is equipped with a motor from a Druzhba power saw, which does not operate very well with the drive. There is no need for mentioning its external appearance -- it is far from ideal.

In 1983, upon the insistence of Tsentrosoyuz, the machine builders developed and accepted into production the new KMM model haying machine. Its weight has been reduced by 30 kilograms. Its maneuverability has been improved, the motor has been updated and the quality of the units raised. The external appearance of the unit has been changed for the better. However, the plant has still not commenced the series production of the new machine.

With regard to the quality of other types of miniature equipment, here we can refer to the results of a questionnaire completed by the owners of MB-1 motorized units, which were summarized recently by workers attached to the All-Union Scientific Research Institute of Economics of the Cooperative Trade. The machine is in demand at stores of consumer cooperation. However, it still has shortcomings. For example, weak contact between the wheels and the soil. Given the relatively low weight of the motorized unit, it is thus subject to skidding during work carried out with a plow, mower or cultivator.

Complaints are also being received regarding the system for starting up the unit. Quite often, the starter cord breaks or the pawl coupling or spark plugs break down. The starter grip is unsuitable for operation. We believe that all of these comments provide ample reason for conducting a more thorough evaluation and for sharply improving the quality of the miniature equipment being produced.

/Question/ There is still one other question, Valentina Georgiyevna. Any equipment produced by plants on a mass basis requires appropriate organization of centralized servicing and repair. How is work proceeding in this regard?

/Answer/ There is nothing to boast about here. Practically speaking, the owners of miniature equipment in a majority of the oblasts are having to handle this problem themselves. The country's only center for providing technical servicing was opened at the Vash Dom store in Kubinka Settlement in Moscow Oblast. Thus, a considerable amount of conern is being displayed regarding this question.

7026
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TILLING AND CROPPING TECHNOLOGY

VASKhNIL CHAIRMAN ON INTENSIFICATION, INCREASE IN GRAIN PRODUCTION

Moscow KADRY SELSKOGO KHOZYAYSTVA in Russian No 1, Jan-Feb 85 pp 37-43

[Interview by M. Kompaneyep with Aleksandr Aleksandrovich Nikonov, president of VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin], under the rubric "APK [Agroindustrial Complex]--Cadres--Implementation of the Food Program: "Scientific Cadres in the Solution of the Grain Problem"]

> [Text] At the October 1984 Plenum of the CPSU Central Committee the General Secretary of the Central Committee, Comrade K. U. Chernenko, in establishing the significance of the question under examination, noted that we are speaking about great supplementary measures directed at solving the food problem on the basis of a systematic intensification of agricultural production and of extensive land reclamation. He emphasized that the key problem, as before, is that of steadfastly increasing grain production.

[Question] Aleksandr Aleksandrovich, would you please share your thoughts about the role of agricultural science in the intensification of production and the role of scientific cadres in the transition of the agricultural economy to an intensive path of development, particularly as concerns the grain problem?

[Answer] Science has become an active production force in society. Its influence was noticeable even when the economy was developing along an extensive path.

Now we have moved to an intensive path of development. The influence of science and consequently especially of its cadres has grown immeasurably. In speaking about intensification in the past we often emphasized the convergence of resources, their concentration per unit of land area. Under conditions of developed socialism intensification signifies a more complete utilization of resources, i. e. of land, water, technology, energy, work time and agricultural raw materials.

It is possible to utilize resource potential better and more fully only when the resources themselves improve, i. e. when the productivity of varieties of agricultural crops and breeds of animals grows and when new technologies and

methods of production organization as well as progressive forms of labor organization and stimulation are introduced. All of this can be provided only by science. For this reason, today we can rightfully call intensification a materialized science.

Intensification can be carried out only on the basis of scientific-technical progress. Here a certain one-sidedness in the interpretation of scientific-technical progress should be avoided. The fact is that sometimes scientific-technical progress is reduced simply to new technology, to new machines and equipment. We cannot acquiesce to this. After all, the plants being cultivated and the animals being bred are also the tools of labor, first and foremost. This means that to improve them there must be development not only of technical but of biological sciences as well. Secondly, the influence of scientific-technical progress cannot be limited only to production forces. This influence also encompasses production relations, that is, all factors--the methods and forms of management, forms of interrelations between people in the production process and the redistribution and use of products.

There is another aspect of the problem which I would like to bring to the attention of all workers of the agroindustrial complex. Scientific-technical progress, just like intensification, is justified only when it leads to growth in labor productivity and to a savings of time per production unit. Sometimes in practice it turns out that there is a direct savings in the expenditure of manpower, which creates the illusion that labor productivity is growing. But if material expenditures increase at this forestalling pace, society does not experience a savings. This type of progress is not useful for anyone. We need economy in total expenditures per unit of end product.

With such an approach the concept of intensification approximates the concept of production effectiveness. The more production per unit of expenditures, the greater the production effectiveness. In order to have growth in effectiveness it is not enough to simply invest resources and increase resource potential. It is no less important to provide the correct structures, proportions, forms of organization as well as a high level of interest and training of people, of labor and technological discipline and of responsibility. As you can see, in the final analysis everything is reduced to cadres, to people, and to the level of their professionalism and awareness.

[Question] Does this mean that in this sense the use of reclaimed lands also evidently depends to a decisive degree on the joint efforts of scientific and production cadres?

[Answer] Yes, of course. At the October 1984 Plenum of the CPSU Central Committee, as you recall, Konstantin Ustinovich Chernenko said openly that scientifically-based agricultural methods, the best varieties and hybrids, leading technologies and programmed harvests must be used on a priority basis on restored lands. And in truth the area of reclaimed lands is expanding steadfastly. Extensive resources are being put into each hectare. The return on these resources must be rapid and the entire management system on reclaimed lands must be different from the one for dry-farming lands.

First of all there is the question of variety. Here our breeders are in debt in terms of some crops and they will repay their debt soon. The full compliment of fertilizers, a struggle against weeds, diseases and pests and programmed harvests are needed. Already today programming encompasses about 3 million hectares of reclaimed lands. In places where this was approached with a sense of responsibility and where every hectare was supplied with the essential resources the results became evident rapidly. Here is an example. Krasnaya Niva Kolkhoz of Mayskiy Rayon, Kabardino-Balkar ASSR, harvested 91 quintals of corn seed from each of 1,000 hectares on which the programming method was utilized. This was in 1984, a bad weather year. Irrigation made up for the deficiency caused by nature. There are many such enterprises. Evidently, the harvest must be programmed on every hectare.

What is programming? Simply speaking, this involves a consideration and satisfaction of those requirements which plants have toward the environment--water and nutrients must be provided, cultivated plants must be protected from enemies, proper care must be given, and all technological operations must be completed on schedule and with high quality. For this we need, above all, people who are very familiar with technology and organization and who utilize resources correctly. Of course, if there is a shortage of fertilizers and equipment then the idea of programming can be compromised, but it is extremely painful to see instances in which the resources are available but are not skilfully used, are squandered and wasted.

[Question] What is the situation with regard to scientific elaborations on the grain problem? With what kind of cadres potential will we be able to solve the problem?

[Answer] Today we have at our disposal a relatively high scientific potential. Within the system of the All-Union Academy of Agricultural Sciences imeni V. I. Lenin alone we have 19,000 scientific workers; there are 130 scientific-research institutes and many other facilities. Science represents a production force of a special kind. It is not the technical means or the plant or animal organisms themselves. Scientific elaborations are the product of man's intellect. These elaborations are further materialized in the form of different models of organization, technology, machine designs, and plant varieties and hybrids.

Our scientific collectives annually produce hundreds and thousands of various elaborations; this is why scientific potential is very high in our country's agricultural sector. At the same time we are frequently dissatisfied with the results of the operations of some collectives--elaborations are sometimes incomplete, fragmented, of a private nature, not brought to their logical conclusion or not in the form of the final model which can be introduced immediately.

Contemporary conditions, especially in connection with the implementation of the country's Food Program, insistently require that we eliminate these shortcomings. Centrally and locally it is essential to direct scientific efforts first and foremost at solving the urgent and most important key problems of the Food Program, and at the grain problem on a priority basis.

[Question] Aleksandr Aleksandrovich, in speaking about production intensification you touched on one of the cardinal problems in the development of a socialist national economy--the problem of increasing labor productivity. Tell us, what does this mean in terms of grain production? On whom and on what does it depend?

[Answer] In terms of grain, which is just like any other product, an increase in labor productivity means a savings in work time per unit of end product.

Of course all of this is understandable. We can speak about the purely practical aspects. What factors must be influenced in order to achieve systematic and steadfast growth in labor productivity? One group of factors is related to increasing production volume and the output of end product and another group--to savings in expenditures themselves. As regards the grain industry it is important to achieve, first and foremost, stable growth in productivity. For the specific conditions of our country with its continental climate on most of our territory, especially in grain regions with frequent droughts and other unfavorable weather phenomena, hardiness acquires a decisive significance. The most powerful means of production stabilization is land reclamation. The government invests great resources into this. In addition, the variety is important, and this depends on the successes of breeding science. At the present time 52 breeding centers for plant growing, including 30 that specialize in the breeding of grain crops, have been organized in the country.

The successes of our breeders are well-known. In recent years breeding work has been directed at developing short-stemmed varieties of spike grain crops of the intensive type which are resistant to lodging, suitable for cultivation according to intensive and industrial technologies and capable of yielding 50-60 quintals of grain and more per hectare. With regard to wheat and rye this problem has been solved. Such varieties do exist. Among them are winter wheat varieties such as Odesskaya Polukarlikovaya, Donskaya Polukarlikovaya and others. About 87 million hectares, or over two-thirds of the grain fields, were sown in the new varieties for the 1984 harvest. They are truly highly productive. Here are the facts. In 1984 Druzhba Kolkhoz of Kiliyskiy Rayon, Odessa Oblast, produced a harvest of 74.7 quintals on each of 110 irrigated hectares, and many enterprises produced 50-55 quintals per hectare without irrigation.

New short-stemmed varieties of winter rye developed by the Bashkir Scientific-Research Institute of Farming and Breeding of Field Crops and by the Scientific-Research Institute of Agriculture in the Southeast (Saratov) are of great value. Under production conditions, for example, the Chulpan winter rye variety yields 40-50 quintals per hectare.

Non-shedding varieties of peas developed at the Voroshilovgrad Test Station are new in international breeding work. Cultivation of these varieties will sharply curtail grain losses due to shedding.

VASKhNIL academician F. G. Kirichenko of the All-Union Breeding Institute (Odessa) developed a winter form of durum wheat for the first time in international practice. Its productivity is on the level of 50 quintals per

hectare and more. The development of such varieties will enable us to greatly expand the area in which durum wheats, so essential to the preparation of macaroni, high-quality flour and groats, are cultivated. We can extend the list of achievements of our breeders. When one hears complaints about the fact that there are no varieties for these or those conditions he understands that the problem is not the varieties but the acute lags of technology behind the requirements of the variety and the contradictions between greatly advanced biological achievements and seriously lagging technology.

The main reason for our difficulties in grain production today involves technology rather than breeding.

In 1984 the Politburo of the CPSU Central Committee examined the question of increasing production of wheat grain on the basis of intensive technology and made the necessary decisions. We are speaking about the organization of the grain industry on a strict scientific basis, which includes the selection of the best predecessor, the best variety for the specific conditions, a sufficient quantity of organic and mineral fertilizer, the use of an integrated system for combatting diseases and pests, a precise technology when supplying it with technical resources, effective forms of labor organization and first and foremost--collective contracts.

In a word, labor productivity in the grain industry is a complicated problem. It must be dealt with systematically without forgetting a single element from among the complex and long chain of factors directed at both stable production growth and an economic consumption of live and reified labor.

[Question] But can you, Aleksandr Aleksandrovich, at least briefly discuss the contemporary state of breeding work? After all, our quite-recently celebrated wheat varieties developed by Krasnodar, Mironov and Saratov breeders played a large role in increasing the harvest. The development of these varieties is tied up with the names of our greatest breeders--P. P. Lukyanenko, V. N. Remeslo, M. I. Khadzhinova, V. N. Mamontov, V. P. Kuzmin and others. Evidently, intensive production requires new types of varieties. I would like to know about the cadres composition of our basic breeding centers. Does continuity exist and is there a real potential for the accelerated development of the necessary varieties of grain crops?

[Answer] Yes, you are right. The breeders whom you have mentioned were prominent scientists and great workers. They left a rich legacy and gave the country some excellent varieties. I must say that some of them, such as for example the renowned Bezostaya-1 wheat developed by P. P. Lukyanenko, have not left the fields even today. But time is moving onward and conditions change. It is true that the intensive stage of agricultural development requires new varieties. I have already said that during the 1970's breeding work was directed at developing short-stem varieties of the intensive type.

If we look at the organizational aspect, we will find that today the line that is being taken involves the creation of large breeding centers. In the past the breeder worked alone with one or two workers. Naturally the development of a variety took years and often decades. Now breeding work is collective in nature and the variety becomes the product of the labor not just of an entire

group of people but of representatives of different specialties. Working side by side with breeders in breeding centers we find specialists such as geneticists and cytologists, phytopathologists and entomologists, biochemists and plant physiologists, soil scientists, technologists, engineers and economists. Today we cannot work any other way. The variety must be not only productive but also resistant to unfavorable conditions in the environment, to diseases and to pests.

The work of breeding centers is now being oriented in this direction. In most of these centers collectives have been created. In some places this process is continuing.

The country and the world are aware of our older breeding centers--the Saratov, Kranodar and Odessa centers. The leading lights of breeding work have died. Of course this is an irretrievable loss but the work is being carried on. Here are some examples. The successor to P. P. Lukyanenko, a young breeder and corresponding member of VASKhNIL, Yu. M. Puchkov, is successfully continuing the work of his teacher. With his direct participation and under his leadership several varieties of soft wheat suitable for cultivation according to intensive technology have already been developed and regionalized. He also developed the Polukarlikovaya-49 winter wheat variety, which has been regionalized in the Northern Caucasus and the southern Ukraine. Its potential productivity is 70-80 quintals per hectare. Working here is a talented breeder of barley and doctor of agricultural sciences, V. M. Shevtsov.

Breeders of the middle generation are working successfully in the country. First and foremost we must mention the Don scientists and VASKhNIL academician, I. G. Kalinenko, who developed a number of excellent varieties of winter wheat such as Donskaya Ostistaya, Zernogradka-2, Donskaya Polukarlikovaya, Novinka-2, Rostovchanka and a number of others. We can name Kurgan breeder V. Z. Lisich, Voroshilovgrad breeder A. M. Shevchenko, S. F. Lyfenko from Odessa, E. D. Nettevich from Nemichinovka near Moscow, N. A. Rodina from Kirov, V. I. Golovchenko from Kiev, V. A. Zykin from Omsk, V. K. Movchan from Shortanda and many others.

To our satisfaction, the leading lights of native breeding work, VASKhNIL academicians F. G. Kirichenko and D. A. Dolgushin in Odessa and G. S. Galeyev in the Kuban, are still working fruitfully.

Life requires that we develop varieties within a shorter period of time than before. We must bring them into the fields sooner. A very good method for rapidly multiplying the new variety has been developed in the Omsk Breeding Center; it has been widely implemented under Western Siberian conditions. In summarizing the aforementioned, contemporary and modern breeding work can be compared to the building of a house. Previously a small house could be built by one carpenter and two helpers. Today we need the cooperation of people from many professions--a stonemason, a crane operator, a sanitation technician and a parquet floor layer. This is a manifestation of the general laws of development which consist on the one hand of a division of labor and on the other of cooperation.

[Question] You spoke about the collective nature of the modern creative breeding process. Of course the corresponding higher educational institution or university will train the phytopathologist, the physiologist, the chemist, the physicist and the technologist for the collective breeding process, but who trains the breeder himself? How is he trained? After all, these are people with a specialty profession and it is no secret that not every agronomist can become a breeder. One needs talent as well. Doesn't this have to be taken into account? Is there a system for training cadres for breeding work that meets present-day requirements?

[Answer] Yes, this type of system does exist. First of all there are special divisions within agricultural departments of some large higher educational institutions such as the Moscow Agricultural Academy imeni K. A. Timiryazev, the Leningrad Agricultural Institute, the Kishinev Agricultural Institute and several others, totalling 14 higher educational institutions. Post-graduate study is available in a number of scientific-research institutes and higher educational institutions. The practice of internships both inside and outside the country exists. A system of upgrading training exists in the Timiryazev academy and in several other higher educational institutions. Every 5 years people are invited to refresh and add to their knowledge for 3-month periods. Moreover, seminars and courses and various professional meetings and conferences are offered. There is also a special press organ--the journal called SELEKTSIYA I SEMENOVODSTVO.

Does everything here correspond to present-day requirements? We feel that the level of training and retraining must be higher today.

[Question] Cadres of breeders are scientific cadres, but I feel that we cannot separate these scientific matters from the practice of seed farming when we are speaking about seed. What, in your opinion, is needed for the rapid transition of seed farming to an industrial base?

[Answer] First I would like to say something about breeders. In truth breeders are scholars, but they are scholars of a certain type. Breeding work requires great persistence, scrupulousness, fine powers of observation, precise record-keeping and limitless industriousness. Sometime in the early part of the last century one of the first Russian agronomists, M. G. Pavlov, in speaking about efficient agriculture, was asked the question, is agriculture a trade, an art or a science? He answered, "It is the lot of agriculture to be characterized by immobility like a trade, by blind success or a number of economic errors like art and by calculated success like science."

Of course we cannot limit ourselves to a hothouse, a laboratory or a plot of land--a variety comes to life only when it moves to the wide road of mass seed cultivation. Today this branch, like agriculture as a whole, is making a transition to an industrial base. And here too the person who is well-prepared and responsible and who likes his work will be a leader. The second component--the material-technical base--includes above all a drying industry, covered threshing floors and a selection of machines for cleaning, sorting and so forth. Finally, there is the large agricultural enterprise where this seed is cultivated.

Industrial seed farming, like breeding, lacks various types of cadres--not only agronomists-breeders who receive elite seed from breeding centers but also good technologists, organizers, engineers, economists, agrochemists and plant-protection specialists. These cadres are being trained in our higher educational institutions and are being improved and retrained in corresponding institutions and courses.

[Question] Thus, the variety is developed, the farming system has a scientific base and the technology for obtaining seed is elaborated. What characteristics do you feel an agronomist in an enterpise should have to ensure the production of a large quantity of high-quality grain under his leadership?

[Answer] All production must be of a high quality. We cannot limit ourselves to quantitative indicators alone. To some degree we are too concerned with the "gross" approach; we have counted quintals and hectares but did not demonstrate sufficient concern about the contents of this quintal, i. e. about protein in wheat, sugar in beets and so forth.

Here a great deal depends on the agronomist. What is today's agronomist like?

The agronomist is commonly referred to as a field technologist. In principle this is correct, but in reality an agronomist is not always a field technologist in the full sense of the word. Frequently he is reduced to everyday activities, to all kinds of details, to individual agrotechnical methods while forgetting the most important thing--the end product with its qualitative and quantitative indicators.

Above all the agronomist must know the life of the field in general. Our fellow countryman, agronomist A. G. Doyarenko, was a classic example of this. In his short but very detailed work, "The Life of the Field," he demonstrates with great skill all of the complexity and diversity of biological, physical and other processes that occur in the top layer of soil.

I would like to say that in the course of specialization many contemporary professions within the agricultural sphere have branched out of the universal agronomist--economist, zooengineer, reclamation worker, agricultural-forestry reclamation worker, engineer and others. The leading lights of native agronomic science, such as A. T. Bolotov, A. S. Yermolov, I. A. Stebut and others, were not just agronomists but also economists and it is even difficult to say what there is more of in their work--pure agronomy or agroeconomics.

By all of this I would like to say that the modern agronomist must have a broad orientation, must have the ability to think systematically and to incorporate all of the multi-faceted, complex biological, technological, economic and social processes on which modern agriculture is built.

One further point. The modern agronomist must have a creative approach to work and unoriginality and routine must be alien to him. After all, agriculture itself is regional. The configuration of objective conditions, under which it is carried out, is unique and nothing probably brings more harm than excessive organization and routine decisions. Here we must take into

account not only soil characteristics and the availability of resource potential but changing weather conditions and growing demandingness as concerns quality and quantity of production as well. All of this must be encompassed. When we speak of production forces we cannot forget that the main, basic production force at any level of development of technology and science has always been and will always be the individual. For this reason, we must keep in individual in mind in any matter.

Contemporary practice is rich in examples of the activities of noteworthy agronomists. I personally know many of them in different regions of the country. Those people who achieve success under difficult natural conditions with a shortage of resources and in spite of natural calamities are worthy of special respect. I would like to bring up three names. All three are agronomists in enterprises--Nikolay Georgiyevich Kovalev, Fedor Akimovich Ivashchenko and Ivan Kirillovich Okhrimenko. All three work under the conditions of a severe, dry Stavropol steppe. With their active participation a system of stable dry farming has been developed. These people are friends of science and they are constantly doing research. They are agronomists with a broad orientation. They know how to evaluate all factors and how to calculate expenditures. For their participation in the development and implementation of measures on the stable development of the grain industry they recently were honored with the title of recipient of the Prize of the USSR Council of Ministers.

These people are not unique; others like them exist in practically every oblast, republic and rayon. They must be supported and trusted; their initiative must be developed.

In conclusion I would like to return to that with which our conversation began. Intensifying public production, increasing its effectiveness by means of growth in labor productivity and implementing the Food Program are the fundamental directions for the party's economic policies. This was emphasized once again in K. U. Chernenko's speech to the Politburo of the CPSU Central Committee on 15 November 1984. Undoubtedly, cadres of agricultural science will continue to work with a high degree of responsibility and understanding of their duty in order to make their contribution to completing the five-year plan and to accelerating the intensification of the economy.

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TILLING AND CROPPING TECHNOLOGY

PROTECTING WHEAT CROPS IN KAZAKHSTAN

Alma-Ata SELSKOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 7, Jul 85 pp 14-15

[Article by T. Nurmuratov, Director of the Kazakh NII [Scientific-Research Institute] for Plant Protection and candidate of biological sciences, Yu. Geshtovt and N. Yevdokimov, department heads, and A. Korchagin and M. Koyshivayev, senior scientific workers and candidates of agricultural sciences: "Dependable Protection for Wheat Crops: The Zonal System--Path Towards Stable Harvests"]

[Text] In the cultivation of spring wheat according to intensive technology, protection from pests, diseases and weeds, which noticeably increase potential harvest losses, is very important.

The main pests in the republic are the grey grain cutworm, the wheat thrips, the Hessian fly, the eurygaster and the stem grain flea. Periodically damage is caused by the cereal greenbug, the leaf beetle, the locust, the wheat floral mite, the striped grain flea and rodents.

The most harmful diseases are regular root rot, stem and brown rust, septoria spot, helminthosporiosis leaf blight and powdery mildew.

Of the weeds, the most widespread and damaging are sowthistle, cornbind, field cress, fat hen, dullseed cornbild, Tartary buckwheat, prostrate amaranth, wild oats, quack grass and sedge.

In recent years the Kazakh NII for Plant Protection has developed a system for protecting grain crops from pests, diseases and weeds which includes a complex of organizational-economic, agrotechnical and chemical measures enabling farmers to decrease harvest losses to a minimum; this system is being introduced in the republic's northern oblasts. The foundation of this system is the agrotechnical method. However, the role of individual agricultural devices in regulating the number of harmful organisms is often multi-faceted. Some methods, while improving the development of the plant, make conditions worse for the the reproduction of pests and the development of diseases. Other methods may contribute to strengthening the harmfulness of these pests and diseases.

Fallow is the basic link of grain-fallow crop rotations in which it is possible to implement the full series of phytosanitary measures. Moreover, the resistance of a plant is improved by means of improving the food and water regimen of the soil.

In the struggle against weeds on fallow fields it is essential to carry out no fewer than four cultivations, including three mechanical cultivations and a fourth chemical cultivation, which is performed in July on vegetating weeds by means of spraying with 2.4-DA or 2.4 DB butapon [Translation unknown].

One of the treatments should be carried out by means of a rod cultivator to a depth of 7-8 centimeters by 20-25 June, i.e. prior to the beginning of the appearance of the grey grain cutworm butterfly. This method destroys up to 80-85 percent of the pest chrysalises, thereby decreasing the pest population of nearby fields as well.

Superphosphate applied to fallow fields (60 kilograms per hectare) raises the resistance of plants to root rots, rust, powdery mildew and suctorial pests. Infection with root rots decreases by a factor of 2-3 in these cases and the degree of development of disease does not exceed 10-15 percent, i.e. it decreases to threshold levels.

Soil cultivation for the second crop after fallow should include early spring harrowing with needle harrows and presowing soil cultivation with cultivators to the depth at which seed will be sown (5-6 centimeters) with simultaneous harrowing.

With the goal of decreasing the population of caterpillars in the prechrysalises of the grey grain cutworm and of Hessian fly larvae as well as of destroying wild oats shoots, supplementary presowing cultivation of the soil must be carried out to a depth of 6-8 centimeters with simultaneous harrowing. The number of pests and weeds decreases by 60-90 percent in this case. Fields are cultivated if the infestation of the grain moth exceeds 1-2 caterpillars per square meter.

In the struggle against wild oats in spring wheat crops the pre-shoot application of triallat [Translation unknown] with immediate placement into the soil to a depth of 4-5 centimeters is effective. For applying triallat in the spring, units that combine rod sprayers with LD-10 and LDG-20 disc stubble breakers and harrows have proven themselves well. Such units enable workers to apply the herbicide, place it into the soil and level the fields during one trip.

An integral and important link in the complex of protective measures against harmful organisms is the careful preparation of seed material, upgrading it to first and second class condition and treating it with fungicides.

Treatment is carried out differentially by means of systemic or combination disinfection. Vitavaks [Translation unknown], fundozol [Translation unknown] and baytan [Translation unknown] are used to sanitize seed crops against powdery mildew. To treat seed earmarked for industrial crops combination disinfection agents are utilized according to recommendations--pentatiuram

[Translation unknown], geksatiuram [Translation unknown], pentachlornitrobenzene, gammageksan [Translation unknown] and mercurbenzene. In comparison to granosan, combination seed fungicides and systemic fungicides yield an increased harvest of over 1 quintal per hectare in the northern oblasts of Kazakhstan.

In order to improve the quality of seed a method of calibration or fractional separation is recommended. Its essence is the separation during seed cleaning of small batches which are most infested with larvae of wheat thrips, greenbugs and grain beetles or infected with helminthosporiosis leaf blight and Fusarium wilt. The use of this method alone enables workers to increase productivity by no less than 1 quintal per hectare.

One of the most effective agrotechnical methods to regulate the number of pests and the development of disease and to combat weeds is the schedule for sowing wheat.

Sowing during the later segment of the optimal schedule decreases the infestation of wheat spikes with wheat thrips larvae by over 40 percent; infestation of plants with stem grain fleas and the Hessian fly and infection with root rots are also curtailed.

It is recommended that sowing take place as late as possible on fields overrun by wild oats. Additional surface packing when soil is the least bit dry and the avoidance of deep spring harrowing are effective in stimulating the growth of wild oats. In all cases, pre-shoot cultivation during the 1-1.5 leaf phase and post-shoot harrowing of crops are desireable.

During years with late, cold springs it is not possible to destory wild oats even with repeated presowing soil cultivation. In this case herbicides are used to counteract wild oats.

Average-to-late varieties Omskaya-9 and Tselinnaya-21, which are sown at the optimal early time, are more vulnerable to the grey grain cutworm, potential stem pests, the striped grain flea as well as root rot, covered smut and rust. Infestation with wild oats and bristlegrass is also greater. On these crops chemicals should be used as a matter of priority.

The purposeful use of agrotechnical methods prevents the mass reproduction of most harmful agents. At the same time, each year on a significant area (about 30-40 percent) in the course of vegetation the necessity arises to carry out a chemical battle against pests and diseases, and 75-80 percent of the area requires treatment with herbicides.

In order to protect spring wheat from rodents in northern and western Kazakhstan, their extermination is recommended during the stages at which they survive in forest belts, chopped wood and brushwood. The optimal period for combatting rodents is late April-early May in the west and May in the north.

In order to combat small rodents, bait made from wheat and zinc phosphide and gliftor [Translation unknown] (in a dose of 5 and 0.5 percent respectively) with the addition of sunflower oil at a rate of 20-30 grams per kilogram of

bait is recommended. The application rate is 0.5-1.5 kilograms per hectare depending upon the number of rodents.

The struggle against the small ground squirrel in the western part of the republic should be carried out on virgin plots near fields of spring wheat during the period of mass awakening of animals.

Bait of oats poisoned with zinc phosphide or gliftor and the addition of sunflower oil is recommended.

Effective protection of crops from pests, diseases and weeds is provided by the chemical method of combatting them during the course of vegetation as well. The use of this method must be based on data relating to the phytosanitary diagnosis of crops with a consideration of the economic ramifications of harmfulness.

With the appearance of over 400-500 beetles of the striped grain flea per square meter, dusting with 12-percent GKhTsG dust or spraying with metaphos [methyl parathion] is carried out.

For the forest-steppe zone of northern Kazakhstan, which is characterized by a constant and high degree of harmfulness incurred by the frit fly and stem grain fleas, a combination threshold has been established--25-30 flies plus 3-4 flea beetles per 100 sweeps of the insect net.

On fields where, according to data from spring surveys (prior to sowing), the number of vital Hessian fly larvae exceeds 5-10 per square meter insecticides should be employed. Spraying of insecticides is carried out during the peak flight of the pest, as determined with the help of glue traps.

The optimal period for chemical treatment against a number of potential stem pests is the 2-3 leaf phase. One-time spraying with one of the insecticides--BI-58 phosphamide, metaphos or chlorophos--provides the opportunity to decrease infestation with these pests by 60-70 percent.

For the first spring wheat crop after fallow the use of herbicides is called for on fields where infestation comprises over one stem of perennials per square meter and 12-15 annuals per square meter; for the second crop after fallow the respective figures are over 2-3 perennials or 20-25 annuals per square meter. Here for the first wheat crop after fallow herbicides of the 2.4-D type should be used against dicotyledonous weeds by means of spraying crops during the tillering phase either from land or air vehicles. Butapon [Translation unknown], oktapon [Translation unknown] or krotilin [Translation unknown] may also be used.

For the second wheat crop after fallow we can use the same herbicides against dicotyledonous weeds, but with their systematic use for grain crops there is an accumulation of weeds that are resistant to them--Tartary buckwheat, prostrate amaranth, Russian thistle and catchweed bedstraw. In the struggle against them the herbicides dialen [Translation unknown] and 2M-4KhP, which can also be used during the tillering phase, are highly effective.

During the period of vegetation of spring wheat, illoksan [Translation unknown], which achieves an increased yield of 1.5-2.5 quintals per hectare, is effective against wild oats and bristle grass.

During years with increased precipitation during the spring-summer period chemical treatment against the red-breasted leaf beetle may be required on grain crops in northern Kazakhstan, especially on durum wheat crops. The economic threshold of harmfulness is the presence of over one beetle per 10 plants during the tillering phase, or 150 larvae per square meter of wheat during the booting phase.

The chemical battle against wheat thrips and greenbugs is carried out at the end of the booting phase to the beginning of tillering in wheat. In northern Kazakhstan the harmfulness threshold comprises 8-10 adult thrips per stem, or 60 thrips per two sweeps of the insect net, or 5-10 bugs per stem with a 50-percent infestation of crops.

Spraying is carried out according to recommendations using one of the following insecticides--phosphamide, BI-58, carbophos, metation [Translation unknown] or metaphos.

In order to avoid harvest losses due to rust, air or land spraying of crops is carried out using one of the following fungicides--tseneb, polikarbatsin [Translation unknown], bayleton [Translation unknown] or afos [Translation unknown]. Depending on the time wheat is infected, the first treatment is carried out during the period of booting-tillering of wheat and the subsequent treatment--in 8-10 days. Treatment is halted 20 days before harvesting.

The preservation of the harvest and production of high-quality spring wheat seed in western Kazakhstan are possible only with the organization of effective crop protection against the eurygaster. The optimal period for carrying out protective measures against it is when larvae of the third stage appear on crops. When the expected yield of wheat is over 10 quintals per hectare the economic threshold of harmfulness during moist years equals two larvae per square meter, and during dry years--three larvae per square meter. To preserve grain quality, it is recommended that chemical treatment be confined to the phase of early grain formation.

The struggle against the grey grain cutworm is carried out on seed plots when there are 10 caterpillars per 100 ears and on row crops--20 caterpillars per 100 ears. (During years of cold rainy weather the threshold is decreased to 7 and 15 caterpillars respectively and during dry years it is raised to 15-30 caterpillars per 100 ears). Spraying from airplanes during the phase of milky ripeness using one of the following insecticides--metaphos, cholorphos, industrial chlorophos or carbophos--is effective.

One of the important factors in decreasing the number and harmfulness of many types of pests and diseases and in raising the quality of seed is the proper selection of methods and schedules for harvesting wheat and the curtailment of the duration of the harvest. Thus, a delay of 10 days in harvest operations doubles harvest losses caused by the grey grain cutworm. Fields with a large number of cutworm and Hessian fly caterpillars and rust infestions must be

harvested first. Early harvesting with low stubble cutting and the use of grain lifters decreases harvest losses caused by the Hessian fly by 20-30 percent.

We cannot tolerate overripe crops and delays in the pick-up of windrows of durum wheat infested with floral mites because there is rapid germination of grain in ears.

The successful protection of the harvest is determined to a large degree by an objective evaluation of the phytosanitary condition of fields and by an efficient and reliable prediction of the appearance and development of harmful organisms. It is essential to create links of inspectors in every kolhoz and sovkhoz to constantly control crops under the leadership of a trained specialist. The practices of leading enterprises show that one inspector is needed for every 3,000-4,000 hectares of grain crops.

The system of protecting grain crops from pests, diseases and weeds has been extensively tested under production conditions in Chervonnyy, Ruzayevskiy, Tikhookeanskiy, Zerendinskiy and Zapadnyy enterprises of Kokchetav Oblast and in Zhanyspay, Kurskiy, Zheleznodorozhnyy and Dalniy enterprises of Turgay Oblast. Results have shown that the use of the recommended complex of protective measures enables us to preserve 1-2.5 quintals of grain per hectare. Since 1984 this system has been accepted for introduction into production on an area of up to 5 million hectares.

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TILLING AND CROPPING TECHNOLOGY

ARTICLE DISCUSSES METHODS OF COMBATTING RUST IN WHEAT

Alma-Ata SELSKOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 7, Jul 85 pp 16-17

[Article by V. Turapin, senior scientific worker and candidate of agricultural sciences, KazNIIZR [Kazakhstan Scientific Research Institute of Grain Crops] and V. Gorkushenko, director of the forecasting laboratory of the Kazakh SSR Ministry of Agriculture: "Methods of Combatting Rust"]

[Text] Two forms of rust--stem rust and brown rust--are the primary parasites of wheat. Under favorable conditions these diseases spread easily.

Epiphytotic outbreaks of stem rust can develop in the northern grain zone simply as a result of the drift of infection by means of air currents. An outbreak of brown rust occurs as a result of infection from localized primary disease centers (wild grasses) or by means of infection with spores brought in from the outside.

The agents of these diseases--fungi, or so called obligate parasites--develop only in live tissue. As we know, they infect the more powerful and developed plants. Conditions that encourage intensive growth of wheat at the same time foster the development of rust fungi in crops. Epiphytotic outbreaks usually favor high-yield years with good weather conditions.

Intensive wheat-cultivation technology in Kazakhstan envisages the expansion of the area in fallow. The main purpose of this technology is to accumulate and retain soil moisture. At the same time, clean fallow has a great effect on the nutritional regimen. In creating a favorable water and air regimen, fallow cultivation contributes to the activation in the soil of biological processes and to the accumulation of nutritional substances that are accessible to the plant.

As a result of fallowing a one-sided surplus of nitrogen usually develops when there is a shortage of phosphorus. This results in a strengthening of growth of vegetative organs, in greater density of the crop stand and in a decrease in the resistance of wheat plants to rust. The same thing has been observed on a smaller scale in the second wheat crop after fallow.

We must consider that rust diseases can be a considerable hindrance to producing a guaranteed wheat harvest according to an intensive cultivation technology if protective measures are not taken.

The elimination of an unfavorable ratio between nitrogen and phosphorus in clean fallow soil by means of applying superphosphate to grain crops will significantly increase the effectiveness of clean fallow and the hardiness and resistance of plants to rust.

It has been established that there has been a noticeable effect of phosphorus on Saratovskaya-29 wheat when superphosphate is applied during sowing.

Fertilizers contribute to the weakening of wheat's susceptibility to diseases as well as of the interaction of the fungus and plant. Under the influence of phosphorus fertilizers plants compensate to some degree for losses incurred by rust fungi. They find it easier to replace the tissue that was destroyed by the stem rust pathogen, the action of which causes a great rupture of the epidermis after the formation of uredopustules and teleutopustules. In this sense fertilizers play an important role in decreasing the harmfulness of the disease because by restoring the tissue that was destroyed as a result of fungal sporogenesis there is a decrease in respiration and transpiration, and in connection with this there is less exhaustion of the grain.

Moreover, phosphorus encourages a strengthening of the development of the root system and an accumulation of sugars, increases the water-retention capability of protoplasm and accelerates the maturation of plants, which in turn decreases the duration of fungal parasitization of plants by means of decreasing the number of fungal generations. Consequently, phosphorus fertilizers are not a means for protecting wheat from rust--they simply enhance the ability of the plant to withstand disease. As research has shown, with the application of superphosphate the intensity of infection of wheat with stem rust decreased by 23 percent; there was a savings of 1.5 quintals of grain per hectare due to the prevention of losses.

Effective protection against rust, when the threat of epiphytotic outbreaks is present, is possible only when the fields are treated with tsineb [Translation unknown]. With spraying from airplanes, 4 kilograms of preparation are recommended per 50-100 liters of liquid. The interval between treatments is 8-10 days. It is essential to spray fungicides for brown rust if on the average the infection of all the leaves on a single stem equals eight uredopustules (1-2 pustules per leaf). The first spraying for stem rust is carried out no earlier than the point at which infection of the plant reaches no more than one pustule per stem (degree of infection is 0.01-0.1 percent). This is the result of the fact that the epiphytotic period begins somewhere in the northern part of the republic at this time and earlier treatments may be

premature, later treatments--less effective, and with a 5-10 percent rate of infection fungicides are already not capable of containing the development of epiphytotic outbreaks.

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TILLING AND CROPPING TECHNOLOGY

INTENSIVE TECHNOLOGY FOR INCREASED GRAIN PRODUCTION

Moscow SELSKAYA ZHIZN in Russian 19 Nov 85 p 1

/Article: "Study and Introduction of the Intensive Technology"/

/Text/ The communists and all workers throughout the country are actively discussing the plans for the new wording of the CPSU Program, the Party Regulations and the Basic Directions for the Economic and Social Development of the USSR During 1986-1990 and for the Period Up To the Year 2000. Additional means for ensuring creative work by our party and people have been developed in these historical documents of tremendous political importance and the tasks for a new and accelerated increase in the economic might of the state are defined. During the 12th Five-Year Plan and the following decade, a radical improvement must be realized in the development of the national economy; it must be converted over to the path of intensification.

Within the agroindustrial complex, priority attention is being given to the tasks concerned with achieving stable growth in agricultural production, ensuring that the country is reliably supplied with food products and raw materials and uniting the efforts of all branches of the complex for the purpose of obtaining high final results in conformity with the USSR Food Program. This requires completion of the work aimed at converting agriculture over to an industrial basis through all-round mechanization, the use of chemical processes, electrification, land reclamation work and the extensive introduction of intensive technologies. On this basis, the gross yield of grain must be raised to 250-255 million tons by 1990 and increases achieved in the production of durum and strong wheats, groat and pulse crops, corn and other field crop husbandry products.

These are high and important goals. And the chief means for achieving these goals is the massive use of intensive technologies out on the fields. In accordance with a decision handed down by the CPSU Central Committee and the government, since last year a tremendous amount of work has been carried out within the APK /agroindustrial complex/ in connection with converting grain production over to progressive methods for development. As is known, this was preceded by a large-scale experiment carried out on certain farms in Stavropol Kray and in Ivano-Frankovsk, Lipetsk and other oblasts. It convincingly revealed that with strict observance of a complex of organizational, agrotechnical measures it is possible to guarantee a yield of 50-60 and more quintals of grain

per hectare from "intensive" fields and to stabilize grain production from year to year. With leading experience being taken into account, the intensive technology was employed this year on almost 17 million hectares and it produced definite results -- the kolkhozes and sovkhozes harvested 10 million additional tons of grain.

The achievements of the best collectives are deserving of attention. On farms in Cherkassy Oblast, winter wheat was grown using the new method on more than 100,000 hectares. And on the average, each one of these hectares produced 45 quintals of grain. At the Chervoniy Kolkhoz in Zolotonoshskiy Rayon, a yield of 55 quintals was obtained from each of 320 hectares. The highest grain yield in the Volynya region was achieved at the Leninskiy Put Kolkhoz in Ivanichevskiy Rayon -- 50.3 quintals; the Mechta wheat variety, grown using the intensive technology, furnished 65.6 quintals. Many fields in the Chu River Valley of Kirghizia proved to be very generous -- 57 quintals of wheat per hectare were obtained at the Kolkhoz imeni Lenin in Alamedinskiy Rayon.

Many such fine examples can also be cited for other regions. In view of the fact that intensive technologies ensure high returns, a decision was handed down calling for an expansion in the area of their use next year to 31 million hectares and in the future -- to 60 million. The use of equipment, fertilizers and other resources should primarily be concentrated in this priority direction in the interest of guaranteeing high yields and providing grain production with the required degree of stability. During the autumn, winter wheat and rye were sown using the intensive technology on 14 million hectares. Fine seedlings have been obtained in all areas and active tending of the crops has commenced.

But a great amount of work lies ahead. In the spring, corn, spring wheat, millet, rice, pulse crops, sunflowers, sugar beets, potatoes and vegetables must be sown over large areas using the new method. The leaders of farms, local agricultural industries and party organizations must analyze thoroughly the results of this current season, disseminate the experience of leading workers on a large scale, draw lessons from the existing shortcomings and ensure that the future "intensive" fields serve as a standard for modern farming and furnish a considerable increase in yields. And towards this end, these areas should now be assigned to the best brigades and teams, which should be converted over to a collective contract basis and supplied with the necessary quantities of tractors, soil cultivation machines, mineral fertilizers and pesticides. Importance is attached to ensuring that the machine operators apply fertilizer to the soil during the best periods, carry out their sowing work using seed for the most productive varieties and hybrids and provide protection for their crops against weeds, pests and diseases during specific phases of plant development.

More strict observance of technological discipline must become the law on each field, in each team and brigade and at each kolkhoz and sovkhoz. Skilled personnel must be available if maximum benefit is to be derived from the intensive technologies. Fine professional training is still not being provided for the personnel in all areas. During a meeting of the party-economic aktiv in the city of Tselinograd, it was noted quite fairly that many of us are accustomed to work in the following manner: we sow and that which we grow we harvest. And these are all of our concerns. However, this is not the case

when intensive technologies are employed. Here delicate and intelligent actions are required by a farmer. This is why the personnel must be trained, since the work will not proceed in the absence of thorough knowledge. This then represents the path to be followed if high yields are to be obtained.

At the present time, efficient production organization is required in all elements of the APK from top to bottom and such organization must be based upon the leading achievements of science and practical work. It was just such an approach in the use of intensive technologies, as revealed by last season's results, that served as the chief factor for achieving high final results. And conversely, a formal and ignorant attitude towards the use of progressive farming methods brings about a sharp reduction in yields, negates all labor and resource expenditures and crudely compromises the very essence of an intensive technology.

For example, work being carried out in Ochakovskiy Rayon in Nikolayev Oblast, where this year only 12.8 quintals of winter wheat per hectare were obtained, reveals how land should not be managed. And this was on southern chernozem soil! Moreover, the yield was even less -- 8 quintals per hectare -- at the Ukraina Kolkhoz, managed by I.S. Shevchenko. Here they eliminated crop rotation plans, they plant wheat following stubble predecessor crops and they are not developing irrigation. During this current autumn, the time came to sow winter crops and only 5 percent of the seed in the storehouses was of 1st class quality, the remainer -- 3d class. The 1st secretary of the rayon party committee S.G. Fomin admits that poor agricultural practices are being employed out on the fields and a wasteful attitude towards the land is being tolerated. Unfortunately however, effective measures aimed at correcting these mistakes are not being undertaken. The rayon and farm leaders possess only a weak understanding of intensive technologies and they are making no attempt to study them or to employ them on an extensive scale. Nor are these singular incidents in the oblast. Can this not be the reason why farming production has lagged behind for so long here?

The time is at hand in all areas to switch over in a more rapid manner to the use of progressive methods in agriculture and to reject decisively all old and obsolete methods. There are still some leaders of agricultural industries, specialists and scientists who continue to view intensive technologies as a simple complex of agricultural methods and not as a turning point in farming. At the present time, during this autumn and winter period, the kolkhozes, sovkhozes, agricultural industries and scientific-production associations, in addition to actively preparing for their spring sowing work, must organize courses and seminars for studying the intensive technologies used in the cultivation of various crops. Such work has already commenced in Zernogradskiy Rayon in Rostov Oblast, Repyevskiy Rayon in Voronezh Oblast and in Vurnarskiy Rayon in the Chuvash ASSR. At the same time, personnel training is considered to be a matter of secondary concern in some areas. And time does not wait. Each machine operator, team and brigade leader, farm leader and rural party worker must possess a strong knowledge of all of the methods employed for obtaining guaranteed yields.

Knowledge of and the skilful use of intensive technologies out on the fields will serve to raise the yields of grain and other products to new heights and thus considerable success will be achieved in implementing the country's Food Program.

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TILLING AND CROPPING TECHNOLOGY

INTENSIVE TECHNOLOGY FOR WHEAT PRODUCTION DESCRIBED

Moscow ZASHCHITA RASTENIY in Russian No 1, Jan 86 pp 8-11

/Article by S.P. Starostin, deputy director of All-Union Institute for the Protection of Plants, A.Ye. Chumakov, department head and R.I. Shchekochikhina, senior scientific worker: "Against a Background of High Agricultural Practices"/

/Text/ The intensive technology for wheat cultivation is based upon a strict sequence in the carrying out of all agrotechnical measures, with the characteristics of the crop being taken into account. Compared to the traditional technology, the role played by methods aimed at improving the nourishment of plants and protecting them against pests, diseases and weeds is increased considerably. The need for intensifying the protective measures is conditioned by the fact that optimization of the conditions for plant development -- improving the water and light regime, ensuring the availability of the required nutrients -- simultaneously creates a favorable environment for the development of a number of harmful organisms. Protective measures produce the greatest effect against a background of high agricultural practices. In addition, all of the principal agrotechnical methods often exert a direct influence on the development of harmful species and are used for the sanitation of a planting.

The phytosanitary condition of plantings is dependent to a considerable degree upon the saturation of crop rotation plans with grain crops. For example, with further specialization in crop rotation plans in Rostov and Orenburg oblasts, an expansion takes place in the species structure and an increase is noted in the density of weeds and in the number of larvae of grain beetles and also stalk grain sawflies. In the nonchernozem zone, the Ukraine, the TsChO /central black earth region/, the Volga area and other regions, following three years of grain cultivation and especially oats, an increase was noted in the weediness of fields and in the contamination of soil by the oats nematode. The introduction into a crop rotation plan of one non-infected crop lowers the weediness of the soil by only 30-50 percent. In non-specialized crop rotation plans, where grain crops occupy 20 percent of the area, contamination of the soil by the nematode is lowered sharply, especially following the sowing of timothy and fescue.

The level of concentration of grain crops in a crop rotation plan is established taking into account the characteristics of the crop. Thus, rye and

barley can endure a greater saturation than wheat and stable and hardy varieties can, without damage to the harvest, be cultivated following a grain predecessor crop two years or more in a row. If crop rotation plans are saturated with grain crops to a greater degree than the permissible limits, special protective means must be employed against the weeds and soil-inhabiting pests and pathogens.

Progressive soil cultivation methods are becoming a leading element of the intensive technology. The introduction of bare fallow (up to 20 percent) sharply reduces the weediness of fields. In comparatively damp regions of the European portion of the USSR, bare and occupied fallow make it possible to reduce the numbers of and the degree of harm caused by click beetles, nematodes, ground beetles and other soil-inhabiting pests and to limit the spread of brown rust, powdery mildew and a number of blights of wheat and barley leaves. They are also extremely effective for combating root rots. In dry regions, especially on soils subject to wind erosion, grain crops grown following fallow with minimal soil cultivation are damaged to a lesser degree by click beetles and darkling beetles and the harm caused by root rots also declines. At the same time, an increase takes place under these conditions in the number of perennial root-sucking weeds.

In the case of surface cultivations of soil, an increase takes place in the variety of harmful organisms, including weeds, and this raises the biological stability of the agro-coenosis and often leads to a reduction in the productivity of a field. But the number of some harmful species may decline substantially as a result of a change in the soil's moisture content. The drying out of the upper soil layers is unfavorable for the larvae of click beetles. The spread of root rots as a rule increases during surface cultivations and yet the retention of stubble in regions of inadequate moisture serves to retain moisture and at the same time it raises the disease-hardiness of wheat.

Non-mouldboard and surface cultivations have proven their worth from a phytosanitary standpoint in the eastern regions of the country. In the European territory, a requirement exists for a differentiated approach for using these methods, with the soil-climatic conditions being taken into account. Here, in a majority of the regions, a satisfactory phytosanitary level can be achieved in fallow-row crop rotation plans having 50-60 percent grain crops and non-mouldboard cultivation of the soil following the row crop.

The phytosanitary situation is also affected by the sowing methods and norms. Direct sowing of grain crops using raised sowing norms is recommended as an element of an energy conserving and soil-protective technology. According to data provided by I.F. Pavlov and others (1981), in a dense grass stand the development of stink-bugs is slowed down, the stalks are damaged to a lesser degree by larvae of the Swedish fly, the grain sawfly and garden fleas and the leaves -- by brown rust. In the case of direct sowing of spring wheat in Siberia and Kazakhstan during relatively damp years, the plants were damaged to a lesser degree by root rot owing to a more shallow placement of the seed. However, the weediness of the fields increased greatly.

Some negative phenomena may appear on fields where a technological track was left for tending the crops during the growing season using ground equipment:

growth in the numbers of harmful rodents and some insects, owing to a more expressed perimeter effect -- an increase in the development of rust, powdery mildew and ergot. Weeds will grow at a more intensive rate along the track. Hence, a requirement exists here for first of all for displaying concern for the timely carrying out of protective measures.

In the majority of instances, an application of correctly selected forms and dosages of organic and mineral fertilizers has an unfavorable effect on pests and the causative agents of diseases and at the same time it raises the ability of the plants to endure damage. For example, phosphorus and potassium strengthen the mechanical tissue of stalks and leaves and this inhibits the feeding by larvae of the Hessian fly and it raises the resistance of plants to the stink-bug, the green-eyed fly, the Hessian fly, grain aphids, rust, septoria spot and root rots. Complete mineral fertilization combined with organic fertilizer and microelements tends to worsen the feeding by suctorial insects (aphids, leaf hoppers, bugs). An excess of phosphorus suppresses the vital functions of insects and excessive dosages of nitrogen increases the numbers of bugs and aphids and intensifies the development of rust, powdery mildew and also nitrogen-positive weeds (black nightshade, lamb's quarters and others). However, the selection of definite forms of nitrogen fertilizer and split applications in 3-4 periods make it possible to limit considerably the harm caused by snow mould, yellow rust, powdery mildew, double blossom (Cercosporella rubi) and some other diseases. On the whole, as maintained by T.T. Kuznetsov with co-authors (1984), phosphorus fertilization raises mainly the physiological resistance and nitrogen fertilization -- the resistance of plants to infection.

Thus, in a number of instances a high agrotechnical background successfully solves the phytosanitary problems and yet it does not eliminate them completely. For example, in an anti-erosion system involving minimal and surface soil cultivations, including fallow fields, and also when wheat is grown following a non-fallow predecessor crop arrangement, the use of herbicides becomes mandatory when sowing is carried out using the direct method. During certain periods, it is impossible to proceed unless use is made of pesticides for limiting the development of pests and diseases.

One principal operation is that of treating the seed for the purpose of decontaminating it and protecting future seedlings from pests and diseases. The greatest results are achieved from the use of multiple-purpose disinfectants containing additives of insecticides and biologically active substances. According to data submitted by V.A. Nemkov, a graduate student at VIZR /All-Union Institute for the Protection of Plants/, such treatments carried out during 1983-1984 in Orenburg Oblast lowered the damage inflicted upon spring wheat stalks by larvae of the Swedish fly and root rot by a factor of 2-3 and hence the yield increased by 2.2-2.3 quintals per hectare. Film-forming additives, for example NaKMTs, which improve the adherence quality of the preparation and extend its active period, are recommended for use in the interest of achieving improved quality pre-sowing treatment of seed. In order to raise the resistance of plants against drought conditions and lodging, the disinfection of the seed should ideally be combined with treating it as well with the TUR preparation.

The most interesting period for carrying out plant protection work -- from the appearance of the seedlings to the beginning of the shooting phase. It is at

this time that a campaign is waged against mouse-like rodents, weeds and pests (larvae of the grain beetle, overwintered stink-bugs, leaf beetles and grain fleas). The initial treatments against powdery mildew, rust and root rots are also carried out during this period. Repeated spraying against larvae of the stink-bug, grain aphids, leaf beetles, the Swedish and Hessian flies and thrips and also the use of retardants for preventing lodging are timed to occur towards the end of tillering and the commencement of the stem growth stage. During the grain formation and milky ripeness period, the crops are provided with protection when needed against leaf infections and certain pests.

The number of treatments can be changed depending upon the development and spread of harmful species, but as a rule there are not less than six of them, including top dressings. This creates definite difficulties with regard to ensuring the availability of sufficient equipment and man-power for the measures to be carried out and in addition it requires considerable energy and monetary expenditures. This problem can be solved by combining a number of technological operations (for example, top dressings applied together with pesticides) and the use of tank mixtures of pesticides for simultaneously providing protection against a complex of harmful species. In Stavropol Kray, the combining of chemical weeding using ammonia salt 2.4-D and top dressings of ammonium nitrate, potassium sulphate and an extract of superphosphate on winter wheat made it possible to destroy weeds and lower the development of powdery mildew and the numbers of thrips by twofold (G.R. Dorozhko, 1982). A mixture of Sineb with insecticides effectively protects wheat against rust and stink-bugs. The combined use of pesticides reduced the volume of chemical treatments by 20-40 percent and monetary expenditures by 36-46 percent (E.F. Granin and A.D. Podolskiy, 1983). An application of amino salt 2.4-D in combination with Phosphamide on spring wheat limited the development of intra-stalk pests, root rot and weeds. By means of this method alone, the grain yield was increased by 2.5-3 quintals per hectare. It should be borne in mind that pesticides, when combined with pesticides, are considerably more effective with regard to plant productivity than each of the elements taken separately.

In order to realize a maximum return from expenditures for plant protection and also for the purpose of protecting the surrounding environment, phytosanitary control over the condition of the crops and the carrying out of treatments in conformity with a forecast on the development of harmful species must be organized in an efficient manner. Both foreign and domestic experience reveal that when protective measures are organized in this manner, their cost is lowered by more than 50 percent. In order to restrain the resettling of a number of pests, including stink-bugs, from their hibernation areas, it is sufficient to employ perimeter treatments, especially on large fields in the steppe regions.

The streamlining of chemical protection measures for crops requires a further study of the effects of pesticides and growth regulators on various components of the agro-coenosis. Some data is already available on these effects. Thus Benomil, in addition to displaying fungicide properties, also lowers the viability of the larvae and adult specimens of the leaf beetle; the TUR preparation suppresses the causative agent of helminthosporiosis root rot but does not affect the species of Fusarium; the treatment of a crop with herbicides can limit the development of soil pathogens. At the same time, negative phenomena are observed at times. For example, the use of growth regulators

intensifies the development of helminthosporiosis blight and thus treatment with systemic fungicides is of little effect in this instance.

Greater attention should be given to studying the varietal reaction to the effects of both individual pesticides and pesticides included in an overall complex. In the case of some varieties, the absence of an increase or a reduction in yield is noted despite the effective suppression of diseases. Varietal differences have also been uncovered in connection with sensitivity to herbicide treatments (A.A. Petunova, N.F. Pokrovskaya, 1979; and others).

All of this serves to indicate that the intensive technology for the cultivation of wheat must constantly be improved in conformity with the soil-climatic conditions and based upon a comprehensive study of the characteristics of the varieties under cultivation. When developing a system for protecting a crop, one must strive not only to prevent possible damage caused by diseases, pests and weeds but also to avoid the unjustified use of chemical materials. Importance is also attached to knowing how the quality of a crop is affected by intensive protection. Such knowledge will make it possible to undertake timely measures aimed at preserving and improving that quality.

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FORESTRY AND TIMBER

TIMBER MINISTRY COLLEGIUM EXAMINES INDUSTRY DEVELOPMENT, TASKS

Moscow LESNAYA PROMYSHLENNOST in Russian 18 Jan 86 pp 1-2

[Report by V. Alekseyev: "Reorganization Requires Action: From A Meeting of the Collegium of the USSR Minstry of Timber, Pulp and Paper, and Wood Processing Industry"; passages enclosed in slantlines printed in boldface]

> [Text] The /results of the branch's work in 1985 and the tasks involved in assuring fulfillment of the 1986 state plan in light of decisions coming out of the October 1985 Plenum of the CPSU Central Committee and the fourth session of the USSR Supreme Soviet, 11th convocation/, were discussed on 16 January at an enlarged meeting of the Collegium of the USSR Ministry of the Timber, Pulp and Paper, and Woodworking Industry.

A report was presented by /M.I.Busygin/ Minister of the Timber, Pulp and Paper, and Woodworking Industry.

It was noted that the ministry fulfilled its 1985 plan for the production of pulp (digestion), newsprint, cardboard, fodder yeast, cardboard boxes, cultural, personal and household goods: furniture, wallpaper, matches, skis, stationery and other products. There was an increase in production volumes for most of the main products over the 1984 levels. The production of effective substitures for commercial timber developed more rapidly. Targets for growth of labor productivity were met, and this accounted for the entire growth of industrial output.

The plan for startup of capacities for the production of furniture and particleboards, and the construction of housing, schools and preschool facilities was provided for.

The speaker acknowledged, however, that the year's plan was not fulfilled for a number of the main indicators, namely the output and sale of commercial products in accordance with delivery commitments, the production of commercial timber, lumber, crossties, plywood, wooden panels, standard housing, commercial pulp, printing paper and certain other types of products, the cutting of production costs and the achievement of profits. The national economy was shorted by almost 1 billion rubles worth of products.

The timber procurement industry operated unsatisfactorily. The consumers were shorted by 16 million cubic meters of commercial timber, including 12.5 million cubic meters of round pieces, as a result. The hauling of the timber out to the floating sites was extremely poorly organized.

The Permlesprom, Dallesprom, Zabaykalles, Vologdalesprom and Arkhangelskleprom associations had the largest shortages with respect to timber hauled out and production of the most important assortments. Comrades Medvedev and Savchenko, deputy ministers, and Comrades Skorobogatov, Sidorchuk, Aleksandrov, N. Medvedev, Yakushev, Zayedinov, Prokhorenko and Borisovets, administration chiefs, were to blame for this along with the leaders of the above associations.

A study has shown that the main cause of the lag is rooted in a lack of proper organizational work and order, reduced responsibility of the cadres for the assigned job and for the strict observance of labor, technological and state discipline, and poor engineer support for production. Errors are also made in the planning and in the supplying of materials and equipment. Ultimately, however, it is a matter of sluggish reorganization of management methods. The minister's report and the speeches in the collegium correctly pointed out that there has not yet been a real turnaround in the minds and attitudes of many leaders in the forestry complex.

Take timber procurement, for example. The hitches occur mainly in the final phase: the cutting up of the felled timber and the production of commercial lumber, round pieces and industrial chips. A total of 5.5 million cubic meters of round pieces of lumber was lost because of failure to fulfill the plan for cutting up the felled trees, and this in turn had a negative effect in the form of reducing the nation's supply of lumber and paper products.

There are significant failings in the form of infractions in the use of stocks of noncommercial logs, above-normal consumption of commercial timber for internal needs, the unjustified conversion of commercial grades into firewood, and carelessness with respect to taking over felling areas for cutting.

The machine-shift index is low. The best know-how is not being satisfactorily adopted, as a result of which there is a large gap between the achievements of the outstanding workers and the lower performance figures in the branch, particularly with respect to use of the equipment. The duty-shift system of developing remote and split-up felling areas is underrated.

The ministry has taken a number of steps to correct the situation in the base branch. Among other things, the focus in planning has been shifted from hauling out the timber to the production of commercial lumber. Appropriate additional incentives have been put into effect, as well as special comprehensive rates for those who cut up the felled trees. A unified procedure has been established for each brigade for taking over felling areas, and they now have greater responsibility for thoroughly working the felling areas. All of these steps have not been enough, however. The only realistic way to assure smooth and regular operation of the timber procurement establishments for the production of commercial assortments is to establish inter-season stocks of

logs so that the timber hauled out in the winter is cut up completely and without waste by summer.

In light of directions set forth at the April and October 1985 Plenums of the CPSU Central Committee, the minister stressed, /we must convert more decisively to the intensive management methods, make maximum use of reserves, enhance production management, obtain a more effective return from the new equipment and stimulate the human factor/.

Competition is underway to meet one-fourth of the year's target for hauling out timber by the opening of the 27th Party congress and 55 percent of it by 1 May, and to exceed plans for the output of commercial lumber. It was initiated at the beginning of 1986 by the collectives of five timber industry associations and was approved by the CPSU Central Committee. Right now, it is extremely important to have every worker clearly see his goal and have a clear picture of what he must personally contribute to the common effort. Group seminars/conferences have confirmed that the branch workers are determined to fulfill their commitments. All of the management and the political-indoctrinational work should be devoted to the achievement of this objective.

Last year the pulp and paper industry operated somewhat better than in previous years, although its lag in a number of areas was still not made up. Targets for growth of capacities, the technical reequipment of a number of enterprises and conservation of fuel and energy were not met. Association directors were severely criticized for this: Comrades Zhiganov and Yuferev of Soyuztsellyuloz and Comrades Fesenko and Shtalkin of Soyuzbumag. Comrades Nikolskiy, Pronin and Sentyushkin, deputy ministers, and Comrade Zhuravlev, chief of the TsBP [Pulp and Paper Industry] Production Administration, were severely criticized for inadequate demandingness of cadres under their jurisdiction.

The sawmill and woodworking industry operated below its capabilities. Its technical equipment is below the modern world level. There is a large overconsumption of the raw material, and the output of lumber is reduced as a result of serious deficiencies in the organization and the technology.

A position of exacting criticism was also taken for revealing deficiencies in the management of the panel and plywood industry, in the work of enterprises which build wooden housing and in the performance of the technical administration for implementing the plan for the application of science and technology, as well as the unsatisfactory situation with respect to capital construction.

The report and the speeches by N.G. Bagayev, department head in the USSR Council of Ministers, V.I. Vershinin, Soyuzglavles chief, and L.S. Kravtsov, BeSSR Minister of the Timber and Wood Processing Industry, demanded that there be no more breakdowns in contractual deliveries of lumber and paper products to the consumers (last year the plan was fulfilled by only by 95.8 percent in this respect).

Deputy USSR Minister of Trade I.L. Davydov directed attention to the need for branch enterprises to observe stock-[utilization] discipline and show greater concern for improving the quality of products made of lumber. It is not enough today merely to achieve volumes in monetary terms. We must meet the demand for the needed range of furniture, including inexpensive furniture. The speaker suggested that a study be made of the possibility of hauling furniture to areas of Siberia and the Far East, disassembled, and assembling it where it is sold.

It was noted that there is still poor performance discipline throughout the entire vertical chain from the enterprises up to branch headquarters. Cases of failure to fulfill orders in the ministry were cited. An order calling for the production of new wooden-panel housing for the rural area at the Kineshma DSK [Housing Construction Combine] in Ivanov Oblast, for example.

It is particularly important to intensify economic work in the ministry and make effective and flexible use of the entire range of economic tools and stimuli: profit, prime cost, self-financing and output-capital ratio. Many managers, completely absorbed in routine production matters and accustomed to rolling in resources, forget about this.

Unfortunately, the fitting appeal to put an end to complacency and inertia, to rapidly reorganize as demanded by the spirit of the times, to get down to specific organizational and economic work in the assigned sections to eliminate everything preventing us from acting vigorously and with initiative, to demonstrate a sense of responsibility and to help people understand the changes which are occurring was not properly reinforced in the talks by those who were criticized. Comrade Sidorchuk, chief of Glavzaplesprom [Main Administration of Timber Industry in Western Siberia], Comrade Zhiganov, chief of the Soyuztsellyuloz Association, Comrade Vysotskiy, chief of the Soyuzlesstroy Association, and Comrade Skorobogatov, chief of the Timber Procurement Production Association, did not so much self-critically analyze their own omissions in the management of subdivisions under their jurisdiction, but rather spoke of external difficulties and "objective" causes, and placed the blame on subcontractors. On the other hand, the directive acuteness and agressive tone of statements by Comrades Sentyushkin and Chuyko, deputy ministers, and Comrade Medvedev, chief of the Administration of Forestry and Lumberyards, also did little to convice one that a basic reorganization of management had occurred in the sections entrusted to them.

It has long been noticed that certain directors have an excessively developed liking for assigning tasks from a speaker's platform, have acquired skill in covering themselves with exculpating documents when they are brought to account for an unresolved problem, and have firmly acquired the habit of lightly giving assurances but not bearing responsibility for failure to fulfill the plan. Today, we need a vigorous and objective approach to the job, and not just a display of such. We need to actually reorganize, and not just talk about it. Broad management scope, initiative, thrift and a firm course toward intensification are important. Time for getting the swing of things has long since run out. It is important during the first weeks of the new

five-year plan to set a pace which will assure the absolute fulfillment of all assignments and lead to a basic turnaround in the development of the branch economy.

The 1986 plan specifies higher rates of growth for most types of output than the average rates for previous years. The output of commercial products, for example, is to increase by 4.6 percent (compared with 3.5 percent). Sales of output are to increase by more than a billion rubles over the 1985 figure.

It is planned to increase the production of commercial timber by 10.5 percent, pulp by 5.1, paper by 3.7, cardboard by 10.9, lumber by 13, particleboard by 6.2 percent, and the output of consumer goods by almost 442 million rubles. Every enterprise is expected to take an active part in the realization of the Comprehensive Program for Developing the Production of Consumer Goods and the Services Sphere. /All of the work will be organized with a view to implementing the party's basic instructions for outstripping growth of labor productivity, the extensive use of secondary raw materials in economic turnover, all-around conservation, the adoption of self-financing and the strengthening of discipline and order. The efforts of all branch workers must be directed toward the achievement of these objectives/.

The collegium passed a resolution on the issue discussed. The meeting was attended by I.T. Rysev, section head in the Construction Department of the CPSU Central Committee, M.V. Kuleshov, chairman of the trade union Central Committee, Union republic ministers and directors of associations and enterprises.

The Collegium of the Ministry of Timber, Pulp and Paper, and Woodworking Industry and the Presidium of the trade union Central Committee approved socialist commitments accepted by branch collectives for the early fulfillment of the 1986 plan. These will be published in the newspaper.

11499
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FORESTRY AND TIMBER

NEED FOR EFFECTIVE TIMBER RESOURCE MANAGEMENT IN KOMI ASSR

Moscow IZVESTIYA in Russian 21 Jan 86 p 2

[Article by G. Kozubov, manager of the department for forest biological problems of the Komi branch of the USSR Academy of Sciences, professor and doctor of biological sciences: "Without a Manager the Forest Is an Orphan"]

[Text] Syktyvkar--On the geobotanical charts, the north of the European part of the country is colored a tranquil green. This represents forests, the tremendous wealth of the country, which we have been taught from our school days to view as limitless and inexhaustible.

Aerocosmic photographs of recent years give objective evidence of the fact that this green sea is "growing shallow." The former glory of the Arkhangelsk and Karelian forests is already little more than a legend. Komi ASSR, the most forested republic, is already giving up about 2 million cubic meters annually to industry in Arkhangelsk Oblast. But in the republic itself, where the last forest of any importance in Europe was still preserved, almost 180,000 hectares are cleared annually and there are already more than 5 million hectares--almost one-fourth of the entire forested area--of cut areas, unrenewed felling areas, and undergrowth.

Meanwhile, the invasion of the forest is continuing. In recent years, 3,000 square kilometers of taiga have been removed from forest resources for new buildings, roads and electric transmission lines. During the next five-year plan, the country's largest-capacity gas pipeline Yamal-Tsentr will intersect the republic and a corridor of thousands of square kilometers will be cut through the taiga. In short, in the near future half of all of the forests of the most forested territory in the country will be removed from the operational resources.

We still view the forest as a gift of nature, from which one can draw without too much thought. We give lip service to a scientifically sound forest management but in practice we consider it something secondary, annoyingly hindering the development of a powerful logging technology in the vast northern taiga. We fell trees in a concentrated manner, in areas of many hundreds and thousands of hectares. We do not fell them with grandfather's ax but with very heavy machine units weighing up to 20 tons. When such a mastodon moves through the forest, not just the commercial stand of trees is

destroyed but also all of the seedlings and the soil layer. Scientists and practicing forest managers say that the extreme limit of the estimated timber cutting for the republic, beyond which irreversible negative consequences begin, is 25 to 26 million cubic meters annually. We are taking not less than 34 million.

And this situation, even more pronounced in many places in the forest zone, seems strange. Why is it that way? Because the forest does not have a unique, competent and thoughtful manager. In the last three decades, let us say, forest conservation authorities were subordinate to the RSFSR Ministry of the Forest Industry, the forest inspectorate, the USSR Gosplan, the Ministry of the Timber, Pulp and Paper, and Wood Processing Industry and, finally, the State Committee for Forestry. But the forest needs a single strong manager.

How can one reconcile the national economy's constantly growing demand for timber with ecological requirements and with concerns that all forest riches not decline but increase. In the first place, there must be an abrupt change in the attitude toward forestry, ensuring the continuity of forest utilization, and the investment policy must be reviewed. For today in Komi ASSR, they invest only slightly more than 5 kopecks per hectare of forested area, or only 0.2 percent of the value of the gross product of the republic's timber industry complex. At the same time, about 9 percent, in particular, is invested in the paper and pulp industry, for which we grow forests, and more than 12 percent is invested in logging and wood processing. Whereas in a decade the Finns drained 2.7 million hectares of swampy forest land, only 37,000 hectares were reclaimed in Komi ASSR in the last five-year plan.

A good transportation network is the basis of bases for the intensification of forestry. No forest management measures are effective without forest roads. But the roads are built by loggers. As a rule, the roads are temporary and made of logs, consuming considerable resources and a tremendous amount of lumber--up to 1,000 cubic meters per kilometer. As soon as the forest area is logged, the road is abandoned. And soon one can neither drive nor walk on it to pass through the forest.

In our opinion, the problem of forest roads is so important for loggers, forest managers and many other forest users that it is already essential to establish powerful and highly mechanized intersectorial specialized road-building organizations operating only in the forests.

Forestry needs light mobile mechanisms that save the forest as a biological community. Finally, a larger staff is needed, rather than the present level, where each forester has to cover as much as 50 square kilometers.

The possibilities (potential) of our forests are still great. It is merely necessary to know how to reveal them and help them develop. And then, according to the calculations of experts, each hectare will yield an output 2 to 2.5 times today's level.

The draft of the Basic Directions notes: "...provide for an improvement in the utilization of forest resources, primarily by increasing the complexity of the processing of woody raw materials and establishing enterprises for the

reproduction of forests and the procurement and processing of timber." To this thesis one should add: "Firmly determine the position of forestry in the system of the country's national economic complex, develop specific plans for each region for raising the level of forest management, provide for the inexhaustible long-term utilization of forest resources, and improve their reproduction."

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